THE UNIVERSITY
of EDINBURGH

THE UNIVERSITY *of* EDINBURGH

Victimization experiences in the forensic mental health population; the impact of childhood abuse on adult psychopathology, and predictors of inpatient victimization.

Alice Fawdrey

Doctorate in Clinical Psychology

University of Edinburgh

August 2020

DClinPsychol Declaration of Own Work

Name: Alice Fawdrey

Title of Work: Victimization experiences in the forensic mental health population; the impact of childhood abuse on adult psychopathology, and predictors of inpatient victimization

I confirm that this work is my own except where indicated, and that I have:

- Read and understood the Plagiarism Rules and Regulations
- Composed and undertaken the work myself
- Clearly referenced/listed all sources as appropriate
- Referenced and put in inverted commas any quoted text of more than three words (from books, web, etc.)
- Given the sources of all pictures, data etc. that are not my own
- Not made undue use of essay(s) of any other student(s), either past or present (or where used, this has been referenced appropriately)
- Not sought or used the help of any external professional agencies for the work (or where used, this has been referenced appropriately)
- Not submitted the work for any other degree or professional qualification except as specified

- Acknowledged in appropriate places any help that I have received from others (e.g. fellow students, technicians, statisticians, external sources)
- Complied with other plagiarism criteria specified in the Programme Handbook
- I understand that any false claim for this work will be penalised in accordance with the University regulations
- Received ethical approval from the School of Health in Social Science, University of Edinburgh

OR

- Received ethical approval from an approved external body and registered this application and confirmation of approval with the School of Health in Social Science's Ethical Committee

Signature ……ARFawdrey…… **Date** ……16/08/2020……

Dedication

To my family, both born and found. Thank you for every check in, every cup of tea, and every spotted typo. I would not be here, or be me, without you.

Table of Contents

Word Count Total: 21,618
Systematic Review: 12,481
Empirical Project: 9137

Thesis Portfolio Abstract

Background: Mental health services have undergone a paradigm shift in recognition of the widespread and long-lasting impact of trauma; changing the central question from "what is wrong with you?" to "what happened to you?" Though it has been shown that forensic mental health populations have high levels of trauma, it is a relatively under-researched population in comparison with other groups. This thesis portfolio therefore sought to add to the knowledge base considering forensic mental health populations experiences of trauma. This thesis portfolio consists of two chapters. The first is a systematic review of research exploring the association between childhood abuse and adult psychopathology in forensic psychiatric inpatients. The second presents an empirical project which aimed to explore incidents of victimization experienced by individuals whilst detained within a high secure forensic hospital, and identify potential risk factors for victimization within this environment based on existing victimization literature.

Methods: The systematic review involved a comprehensive search of online databases of published research, to identify relevant papers against predefined inclusion criteria. The resulting 13 included papers were assessed for using two quality assessment tools, and their relevant findings extracted and synthesised.

The empirical project consisted of a retrospective examination of a 5-year period, including all patients (n=278), and all incidents of peer-victimization recorded within this period. The victimized and non-victimized sub-samples were compared on demographic and clinical characteristics. Each individual's history of childhood abuse, and current mental health diagnoses were extracted from their case files, and analysed to explore any association with victimization as an inpatient.

Results: The systematic review found that the included studies were as generally acceptable quality, though some methodological weaknesses were identified. Prevalence of childhood abuse was found to be above that of the general population. Evidence was found of an association between childhood abuse and a range of mental health disorders; namely PTSD, personality disorders, psychopathy, suicidality and self-harming, and global psychological distress. The empirical project found that total days spent in the hospital by the end of the study period was associated with being victimized, as were diagnoses of a psychotic disorder, schizoaffective disorder, personality disorder, and intellectual impairment. Only days within the study and a diagnosis of intellectual impairment were found to be significantly associated with the number of victimizations experienced. The prevalence of PTSD within the sample was lower than expected, highlighting an ongoing under-recognition of trauma in this setting.

Discussion: Both the systematic review and the empirical project highlight that this population is victimized at high levels in their childhood, and through into forensic inpatient care. Both chapters agree that screening for childhood abuse is essential within the forensic mental health population, and the empirical project highlights the need to recognise and respond to forensic inpatients as victims in the present. Those with an intellectual impairment were found to have an increased risk of victimization; this should be recognised and integrated into care planning. Limitations of both the review and empirical project are acknowledged, and recommendations for future research are provided.

Lay Summary

Mental health services have undergone a change in their central question, in recognition of the widespread and long-lasting impact of traumatic experiences on a person. This can be summarised as a change from asking “what is wrong with you?” to “what happened to you?” People within forensic mental health care (those who have committed crimes as a result of mental health difficulty, or who cannot be safely cared for in less secure services due to their risk to themselves or others) are known to have high levels of trauma, this group has been neglected in comparison with other groups. This thesis therefore hopes to add to this knowledge base, and through two chapters.

The first chapter is a review of published research which explores the relationship between having experienced childhood abuse, and mental health difficulties in adulthood, within the forensic inpatient population. The review found that the included studies were of acceptable quality, though some weaknesses in the methodology and reporting of the studies were found and discussed. The prevalence of experiences of childhood abuse was found to be high, and similar to the rates seen in prison populations. When considering the findings of all of the studies together, evidence was found of relationships between childhood abuse and a range of mental health disorders; namely PTSD, personality disorders, psychopathy, suicidality and self-harming, and global psychological distress.

The second chapter is a research project which explored incidents within a high secure hospital where patients were assaulted (verbally, attempted physically, physically, or sexually) by other patients. Potential risk factors identified by research in other populations were explored to see if they were related to victimization in this setting; specifically whether individuals had a history of childhood abuse, and their current mental health diagnoses. The sample was separated into those who were assaulted within the examined period of time, and those who were not. These groups were compared on demographic and clinical characteristics. Also explored was whether an individual’s history of childhood abuse, or their current mental health diagnoses, were related to how many times they were assaulted within the study. The results showed that patients who were in the hospital for longer during the study were more likely to be assaulted, and to be assaulted multiple times. A diagnosis of an intellectual impairment was found to be a significant risk factor for being assaulted multiple times. Importanly, it was also found that fewer patients were diagnosed with PTSD than would be expected, which suggests that trauma is still not being recognised within this group.

The implications of the findings in both chapters are discussed, both for future research and when providing care to this population. The limitations of both chapters are also discussed.

CHAPTER 1 – SYSTEMATIC REVIEW

The first chapter of this thesis contains a systematic review of published research examining the impact of childhood abuse on adult psychopathology, in the inpatient forensic population. The review was written for submission to the Journal of Child Maltreatment, and is therefore formatted and referenced in line with the American Psychological Association (APA) guidelines, as outlined by their instructions for authors which can be found in Appendix 1.

The relationship between childhood trauma and adult psychopathology, in the forensic inpatient psychiatric population: A Systematic Review.

Alice Fawdrey[1,A*]; Dr Joseph Judge[2]; Dr Suzanne O'Rourke[1, 2]

[1] *School of Health in Social Science, University of Edinburgh, Doorway 6, Old Medical Building, Teviot Place, Edinburgh, Scotland, United Kingdom, EH8 9AG.*

[2] *Clinical Psychology Department, The State Hospital, Carstairs, Lanarkshire, ML11 8RP.*

A Corresponding Author at*

Abstract

In this first systematic review of published research examining the association between childhood abuse and adult psychopathology in the forensic psychiatric inpatients, we aim to explore, synthesise, and critically discuss the findings of research in this area. Database searches were conducted, following predefined inclusion and exclusion criteria, resulting in 13 papers that were eligible for review. The included studies were evaluated for quality using two bias assessment tools from the Joanna Briggs Institute. The studies were found to be generally of acceptable quality; however, some key weaknesses were found in relation to the measurement of both childhood abuse and psychopathology, confound management, and analysis and reporting of results. A wide variety of specific relationships were examined regarding different categories and measurements of childhood abuse, and operationalisations of adult psychopathology. Evidence was found to support an association between childhood abuse and the presence or severity of symptoms of various mental health disorders, namely Post Traumatic Stress Disorder (PTSD), a number of personality disorders, psychopathy, suicidality and self-harming, and global psychological distress. Caution in interpreting this evidence is however advised due to the heterogeneity of the population and studies included. The review concludes that further research is required to improve the understanding of this complex set of relationships, in order to improve the support and treatment available for forensic psychiatric inpatients.

Keywords: child abuse, childhood trauma, forensic psychiatry, mental disorder

Introduction

In recent years, increasing numbers of mental health services have sought to become "trauma informed" by reframing the central question underlining the provision of support and intervention to those experiencing difficulties; moving from "what is wrong with you" towards "what happened to you?" (Sweeney et al., 2018). Most widely used modern schools of Psychology agree that childhood experiences contribute significantly to the adult we become. For some children, these foundational experiences are negative in the extreme, such as in the case of children who experience traumas including childhood abuse (CA), and the impact of this can be significantly detrimental and far-reaching.

Impact of trauma on the developing brain

During childhood and adolescence, the brain goes through massive developmental changes and growth, and the evidence increasingly suggests that traumatic experiences, including CA, can impact this development in varied and significant ways.

Read, Perry, Moskowitz, and Connolly (2001) developed the traumagenic neurodevelopmental (TN) model in order to explain the similarities found between the neurological structural changes seen in children who were abused, and those with diagnoses of schizophrenia; positing that experiences of abuse cause lasting damage and changes to the developing brain which can lead to some of the impairments and symptoms associated with schizophrenia.

A recent meta-analysis of Magnetic Resonance Imaging (MRI) studies concluded that childhood trauma was associated with grey matter reduction in areas of the brain responsible for contextual threat regulation and emotion regulation (Paquola, Bennet, and Lagopoulos, 2016). Hein and Monk's (2017) meta-analysis concluded that childhood abuse was associated with increased reactivity of the amygdala, the threat recognition and response system, in response to emotional faces. This change

is understood to be an adaptation to an environment in which real threat and danger are commonplace, and a more sensitive recognition and response system will protect the child and help them avoid this danger whenever possible. They also describe that the research base suggests many regions of the brain are affected by abuse. Childhood abuse (CA) has also been implicated in impairments in memory, learning, and executive functioning through the detrimental impact of high levels of "toxic stress" as these systems are developing (Shonkoff et al., 2012).

With regards to neglect, as an abuse characterised by the absence of experiences rather than the additional presence of abusive behaviours, there is also evidence of negative impacts on the developing brain. Neglect is thought to be detrimental through the lack of necessary stimulation and interaction which is essential to support the development of various brain regions, and also through the impact on the brain of the prolonged stress and trauma experienced by a neglected child (Belsky and De Haan, 2011; Cicchetti, 2002; Teicher et al., 2004). Childhood neglect has been associated with detrimental impacts on cognition, language, and behavioural issues in childhood (Spratt et al., 2012), and ongoing issues with emotion regulation, both through neurological impacts (Panzer, 2008) and due to emotional regulation skills not being developed (Kolk and Fisler, 1994).

Impact of trauma on personality and relationships

Childhood abuse has been strongly linked to the development of problematic personality traits, personality patterns, and to personality disorders (Bierer et al., 2003; Battle et al., 2004). Some have even argued that the association between childhood trauma and Borderline Personality Disorder is so strong that it should be reconceptualised as a form of post-traumatic stress disorder (Herman and van der Kolk, 1987).

Early experiences of others, and oneself in relation to others, form the framework with which a person approaches life and relationships throughout their life. This process is central to the concept of Schema Therapy (Young, Klosko, and Weirshaar, 2006) which attempts to alleviate distress through recognising maladaptive schema and increasing a person's ability to approach situations

from a healthy adult mode. Abusive experiences can be understood to create a variety of maladaptive schema which the child carries forwards and can lead to difficulties in adulthood (Messman-Moore and Coates, 2007; Wright, Crawford, and Del Castillo, 2009).

Complexity of the picture

With links to so many fundamental systems, it is unsurprising that experiences of childhood abuse have been implicated in various far reaching and long-lasting negative effects on survivors' lives. Systematic reviews and meta-analyses have reported general support from the evidence base in the general population with regards to the impact of CA on adult depression, anxiety, Post Traumatic Stress Disorder (PTSD), Personality Disorders (PD), eating disorders, and psychotic disorders amongst others (Carr et al., 2013; Caslini et al., 2016; Lindert et al., 2014; Nanni, Uher, and Danese, 2012; Matheson et al., 2013).

Some reviews, however, have highlighted the complex and variable association of CA and adult psychopathology, exploring again the nature-vs-nurture or genetic-vs-environmental aspects which likely interact to increase the risk of developing mental health difficulties (Carr et al., 2013). Other reviews have noted various methodological weaknesses of the evidence base which limit the strength of the conclusions (Bendall, Jackson, Hulbert, and McGorry, 2008; Bowen et al., 2018; Hillberg, Hamilton-Giachritsis, and Dixon, 2011).

Forensic Mental Health

This complexity is further evident when we consider the forensic population; a group defined by the complex interaction of severe mental illness and aggressive behaviour. As a population, forensic inpatients have been described as having significant trauma histories; Macinnes, Macpherson, Austin, and Schwannauer (2016) found that 82.8% of their sample reported at least one type of CA, and 18.8% reported having experienced all 5 types of CA measured. This stands in contrast to community norms; the World Health Organisation reported rates of childhood abuse based on

international surveys falling between 5.3-10.8% for childhood physical abuse, 0.6-2.4% for childhood sexual abuse, and 3.6-5.2% for childhood neglect (Kessler et al., 2010). Given the dramatically higher apparent incidence of childhood abuse within these populations, examination of the impact of these experiences within this group specifically is clearly justified.Despite this, to our knowledge there are no published systematic reviews which examine the relationship between childhood abuse and adult psychopathology within the forensic inpatient population, though one unpublished review examining both prison and forensic psychiatric populations included two papers with forensic inpatient samples (Macinnes, 2014). This review examined both prison and forensic inpatient samples by necessity, due to the very low number of papers meeting their inclusion criteria, however this naturally added significant variance into the samples examined in the review. This limited the author's ability to draw more specific conclusions regarding either prison or inpatient populations. In addition, this review's narrow inclusion criteria regarding the operationalisation of mental health difficulty (!!) may have caused relevant and interesting research papers to be excluded and lost to the review.

Considering the prison population independantly, a recent systematic review examined this relationship (Bowen et al., 2018), and reported support for an overarching relationship between childhood abuse and adult psychopathology, and also links between various subtypes of childhood abuse and specific psychiatric disorders in adulthood. This review's approach in considering the unique relationships between different abuse experiences and later psychopathology is a distinct strength, and allowed the authors to highlight areas with better evidence and conversely specific relationships with a dearth of or inconsistent evidence. Consistent evidence was reported across multiple studies regarding a link between Childhood Sexual Abuse (CSA) and mood disorders, in addition to support for a relationship between CSA and anxiety, dissociation, and feelings of alienation. Physical abuse histories (CPA) were found to be linked with anxiety and mood disorders, and substance misuse. They identified a relative lack of research examining Childhood Emotional Abuse (CEA) and Childhood Neglect (CN), however they identified emerging evidence linking these to

psychopathy. They also examined the concept of cumulative abuse; that is, experiencing multiple types of childhood abuse, reporting a range of linked mental health difficulties including anxiety and mood disorders, post-traumatic stress disorder, substance misuse, and psychopathy. They included one study which examined Borderline Personality Disorder, which indicated a relationship between multiple childhood traumas and this construct. The review did however highlight various inconsistencies in the evidence base, leading to a call for more research in the area. Several weaknesses and sources of bias were identified through review of the literature, most significantly issues related to study design, variability in the measurement of both childhood abuse experiences and mental health difficulty, the use of self-report measures, low sample sizes and the potential for selection bias, and limited management of confounders or co-variables.

The lasting impact of trauma is an area which is receiving more attention than ever, as governments around the world produce policy drivers to educate and upskill professionals in the importance of trauma-informed services, therefore the research base regarding the relationship between CA and adult psychopathology continues to grow. There has been a significant increase in the number of published studies within the forensic psychiatric population, which now allows this highly specialist population to be examined independently of the prison population. A review of the Cochrane Database of Systematic Reviews (CDSR) established that no such specific systematic review has been conducted, and a review of the Prospero database of prospectively registered systematic reviews showed no registered planned reviews in this area.

The aim of this review is therefore to identify research on childhood abuse and psychopathology in forensic psychiatric settings, synthesise their findings, and critically appraise their quality. As the prison and forensic inpatient populations can be argued to be significantly different, though related, populations, this review will examine the forensic inpatient population individually. Learning from the strengths of previous similar reviews, a wide range of childhood abuse experiences will be included in the review, including neglect, and further will be synthesised within abuse types to allow

for the evidence to be examined for specific abuse experience to adult psychopathology relationships. Finally, an inclusive and broad definition of psychopathology, or mental health difficultly will be used, such that all relevant literature is eligible for inclusion. This will avoid the exclusion of valuable research which uses less direct measures than formal diagnosis but nonetheless speak to the question of this review.

Methods

Search strategy and selection criteria

Database searches were conducted in March 2020 using PsychInfo, MedLine, Embase, and Cinnal, for peer-reviewed journal articles, written in English, presenting data related to some measure of mental health difficulty in adult forensic inpatients who had experienced childhood abuse, prior to the age of eighteen. There were no limitations on publishing date. A set of root search terms were produced and customised to each database to make best use of their search functions. The root search terms were: mental* ill* OR psychopath* OR mental* disorder* OR SMI OR severe and enduring ill* OR MDO OR psychiatric* OR personality disorder* AND forensic* OR maximum secur* OR high secur* OR medium secur* OR low secur* OR offender* OR criminal* OR detaine* OR insanity defen* AND child* abuse* OR adverse childhood experience* OR child* neglect* OR ACE OR childhood trauma OR childhood maltreatment.

Inclusion/Exclusion Criteria

Studies were included if examining adult participants (aged above 18), regardless of nationality, race, or gender, whose primary diagnosis was not one of a learning disability. Included studies were peer reviewed journal articles with no restriction on date. Only studies published in English were included due to a lack of translation resource. Conference proceedings, book chapters or reviews, systematic reviews or meta-analyses, and unpublished theses were excluded.

Childhood abuse was defined as emotional, physical, or sexual abuse, and physical or emotional neglect, that had occurred before the age of 18 (Bernstein et al., 1994). Studies which only examined other definitions of childhood maltreatment or adversity such as parental loss, separation, substance misuse, or domestic violence were not included, as they were deemed to fall outside of the scope of this review.

Psychopathology was defined as some reasonable measure of psychopathology in adulthood, without an exhaustive list prepared ahead of the search. This was deemed necessary to capture the relevant heterogeneous literature. The measure of mental health difficulty could be a direct measure such as formal diagnosis, a validated measure of psychological disorder or distress, or diagnosis through the use of a semi-structured interview to identify symptoms of a given disorder. Also included were studies which examined some reasonable proxy for psychopathology; for instance, self-harming behaviour, or transfer into a mental health service which served only the severely psychologically unwell.

Studies which also included sample groups/variables which did not fit these criteria were considered for inclusion if they analysed the groups/variables separately, such that the relevant results which did meet the above criteria could be extracted independently of other data.

To be included, studies must have included within their analysis some exploration of the relationship between childhood abuse and adult psychopathology, though there was no restriction on the form of this analysis. The inclusion and exclusion criteria used for this review are summarised in Table 1 below.

Table 1.

Eligibility Criteria for the Systematic Review

Inclusion	Exclusion
Forensic inpatients	Prison population
Adults aged 18 and above	Full text not available
Published peer reviewed research articles	Qualitative studies
Full text available	Conference abstracts

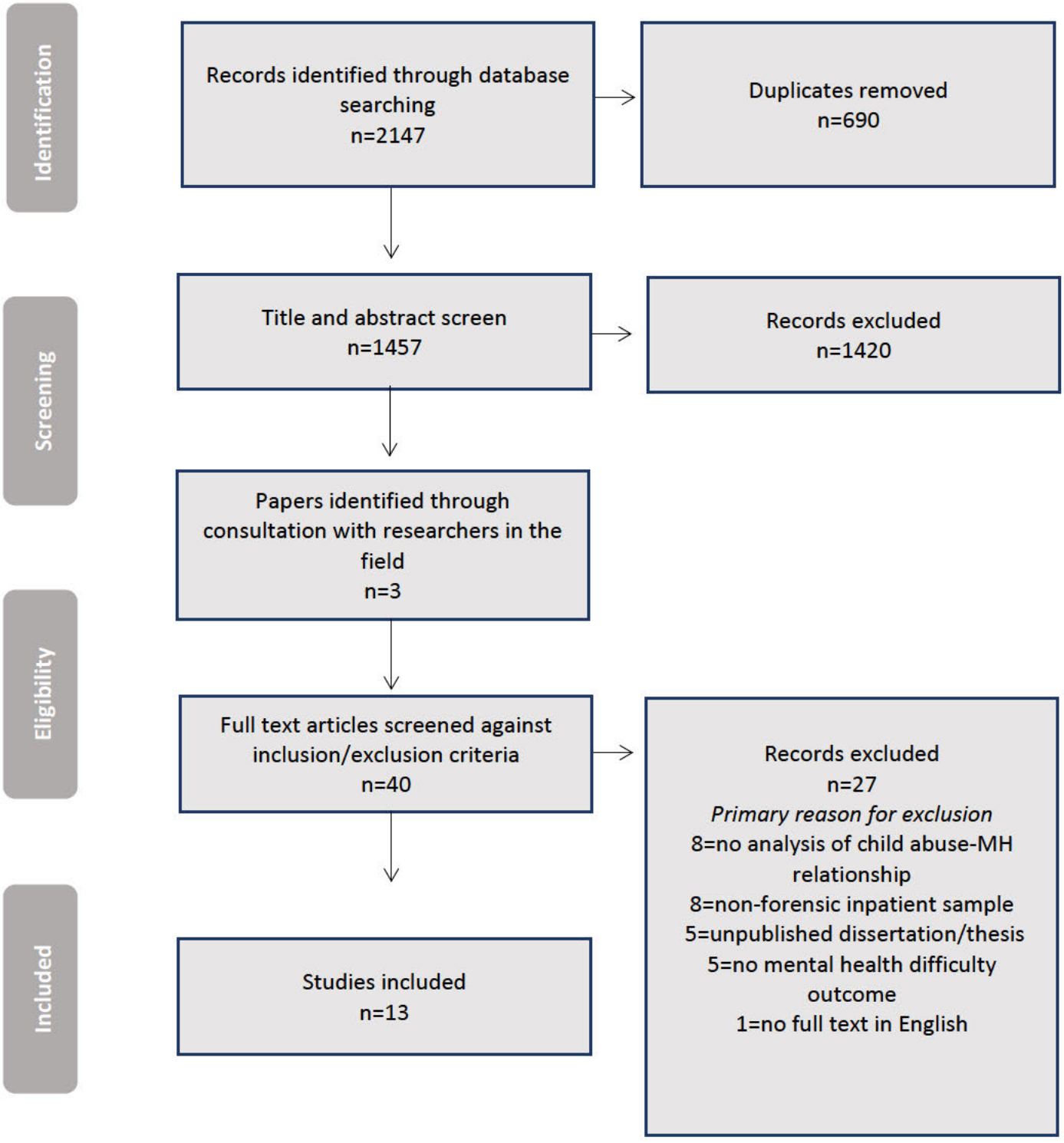
Published in English	Poster Presentations
Childhood abuse defined as emotional, physical or sexual abuse, and/or neglect	Book chapters
Measures mental health difficulty or a reasonable proxy; operationalised as any mental illness or personality disorder diagnoses, symptoms/traits as measured using a validated tool, or other theoretically valid proxy (ie. self-injurious behaviour, prolonged compulsory detention in psychiatric unit).	Unpublished dissertations and theses
Conducts some analysis on the association between childhood abuse and mental health in adulthood	Published only in non-English language
	Participants diagnosed only with Intellectual and Developmental Disorders

Data Extraction and Synthesis

Titles and abstracts were reviewed manually, and full texts were retrieved for papers which either met the criteria or where their eligibility was not clear from title and abstract review. These extracted full texts were then reviewed for inclusion, and once selected for inclusion underwent data extraction. The reference lists of the included papers were manually searched for additional relevant papers which had not been returned by the database search. The resulting numbers of papers at each stage of the search strategy are represented in Figure 1.

Figure 1.

Search Strategy



Quality Assessment

The methodological quality of each of the studies was assessed using two Joanna Briggs Critical Appraisal tools; one for cross-sectional research designs and one for case-control designs (Moola et al., 2017). The Joanna Briggs Research Institute is an international research organisation within the field of healthcare, which has created a series of critical appraisal tools which were subject to peer approval by their in-house Scientific Committee. The Case-Control tool rates studies across 10 items; comparability of groups, matching of groups, criteria for sample identification, validity of exposure measurement, consistency of measurement across groups, confounding variable identification, confounding variable management, measurement of outcomes, exposure period validity, and statistical analysis. Each item is scored Yes, No, or Unclear/Partial/Not Applicable. The Cross-sectional tool rates studies across 8 domains; inclusion/exclusion criteria, subject and setting description, measurement of exposure, condition group allocation, confounding variable identification, confounding variable management, measurement of outcomes, and statistical analysis. Each item is scored Yes, No, or Unclear/Partial/Not Applicable. The Joanna Briggs tools are widely used (Quigley et al., 2019), and have been described as clearly worded and accessible assessment tools (Buccheri and Sharifi, 2017).

Two researchers rated the studies independently, and blind to the other's ratings. Inter-rater agreement was very good, with initial blind ratings being over 90% in agreement, and all the remaining items varying by only one point. Differences between ratings were discussed until consensus was reached.

Results

Excluded studies

At the full text screening phase, studies were examined more closely against the inclusion criteria, and those which narrowly missed these were excluded. Appendix 2 contains a summary of the studies excluded at this stage, with the reasons for their exclusion outlined.

Characteristics of the Included Studies

Included studies comprised of 4 conducted in the United Kingdom, 1 in the USA, 3 in Germany, 4 in the Netherlands, and 1 which collected samples from both Germany and the Sudan. 11 studies were cross-sectional in design, while 2 were case-control studies. One study was conducted within a low secure setting, 3 within high/maximum security, 2 included multiple hospitals across security levels, and 7 did not report the level of security of their settings. Together the studies included 1,712 participants in total; 698 women, 1,013 men, and 1 trans/transgender person. 6 studies included multiple genders, 4 included only men, and 3 included only women. The mean age of all participants was 38.3 years, though 2 studies did not provide mean ages and so were not included in this calculation. Sample size ranged from 30 to 436. Publication dates ranged from 2000 to 2017. Summaries of the included studies are presented in Table 2 below.

Table 2.

Summary of Included Studies

Study	Country	Sample	Mean Age (SD, range)	Setting	Childhood Abuse Measure	Psychopathology Operationalisation and Measure	Summary of Main Relevant Finding*	Childhood Abuse Prevalence
Beer (2009)	England	N=78 M=53 F=25	≤35 = 49 ≥35 = 29 (SD and range not reported or calculable)	Low secure unit	File review; CPA or CSA	Self-harm From incident reporting database	Self-harm significantly associated with CPA and CSA 21% of patients engaged in self-harming behaviour during the study period.	CSA or CPA = 44.9% (35/78)
Bohle and de Vogel (2017)	Netherlands	N=436 M=218 F=218	(On admission) Females: 35.5 years (9.7, 18-65) Males: 34.9 years (9.8, 18-67)	4 gender-mixed forensic psychiatric institutions	File review; CPA (abuse and neglect), CSA, CEA, CAN	Formal Diagnosis, PCL-R[1] Score	Male Ps with CPA were more often diagnosed with ASPD. Female Ps with CSA and CEA were more often diagnosed with BPD. Ps with any CA scored higher on the PCL-R. CPN was associated with increased PCL-R scores for both genders. CPA was associated with increased PCL-R scores for men.	Women: 72.4% (158/218) = At least 1 abusive experience CPA = 41.7% (91/218), CSA = 51.4% (112/218), CEA = 48.6% (106/218), CPN = 10.6% (23/218) Men: 62.8% (137/218) = at least 1 abusive experience CPA = 35.3% (77/218). CSA = 24.3% (53/218), CEA = 41.2% (95/218),

								CPN = 10.1% (22/218)
Cima et al. (2001)	Germany	N=30 All Male		Forensic Psychiatry Inpatients – Security level not described	Self-report: Childhood Trauma Questionnaire (CTQ)[2] (Bernstein et al., 1994) File review: rated CA presence or absence to test reliability of self-report	Self-report: Dissociative Experiences Scales (DES)[3]	Childhood abuse not associated with dissociative symptoms.	Mean score on the CTQ was 62.1 (SD=26.7)
Dudeck et al. (2016)	Germany	N=55 All male	35.75 years (10.7, 22-60)	Forensic Psychiatry Inpatients – Security level not described	Self-report: Belastende Kindheitserfahrungen (KERF)[4] the German version of the Maltreatment and Abuse Chronology of Exposure Scale (MACE)[5]	File review History of at least one suicide attempt	Childhood maltreatment was associated with increased suicide risk.	66% reported at least 1 type of CA 22% reported one type of CA 26% reported 2-4 types of CA 13% reported 5-7 types of CA 4% reported 8-9 types of CA
Eckert, Schel, Kennedy, and Bulten (2017)	Netherlands	N=139 All male	Long-Stay Forensic Psychiatric	High secure hospital	File review; CSA or CEA	Formal Diagnosis	Emotional neglect in childhood predicts long stay group membership.	Total: 40% had CSA (32/89)

			Care (LFPC): 52.97 years (8.09, 38-68) Regular Forensic Psychiatric Care (RFPC): 44.01 years (10.97, 24-79)			Full Scale IQ, Wechsler Adult Intelligence Scale[6] Psychopathy Checklist-Revised (PCL-R)[1] Current psychiatric medication prescribed Admission to LFPC; Long-term Forensic Psychiatric Care (focus on quality of life rather than rehabilitation)	Sexual abuse as a child did not differentiate the groups.	64.2% had CEA (79/123) (Those without sufficient information in the file to rate are not included)
Garieballa et al. (2006)	Germany and Sudan	N=31 Germany Male=12 Female=4 Sudan M= 15 F=0	Germany: 39.3 years (9.3, 21-64) Sudan: 32.6 years (8.0, 21-52)	Forensic Psychiatry Inpatients – Security level not described	Self-report: Traumatic Antecedents Questionnaire, TAQ[7]	PTSD: Semi-structured interview (section P of the Clinical Interview for the DSM-IV (SCID))[8] Hopkins Symptoms Checklist-25 (HSCL-25)[9]	Ps with PTSD had been exposed to more traumatic events. Ps with complex PTSD had higher exposure to CPA, CEA, and CEN. Other types of abuse, at other periods of childhood, showed no significant association.	Participants reported an average of 5 traumatic events with the first from early childhood (with a median of 8 years of age). All participants had experienced at least one traumatic event in their lives.

						Beck Depression Inventory[10]		Further breakdown is not provided.
Karsten, de Vogel, and Lancel (2015)	Netherlands	N=296 All Female	(on admission) Combined ages not provided Non-BPD= 53.3 years (9.8, range not provided) BPD= 34.9 years (9.6, range not provided)	Forensic Psychiatry Inpatients – Security level not described	File Review	Formal Diagnosis File review to complete: PCL-R[1] Historical items of the HCR-20[11] Female Additional Manual[12]	BPD women were more likely to have CA histories. Women with BPD were more likely to have CEA, CSA, and more than one CA type. Women with and without BPD did not differ in CPA history.	81.7% of those diagnosed with BPD were abused before the age of 17 67.3% of women not diagnosed with BPD were abused before the age of 17.
Macinnes, Macpherson, Austin, and Schwannauer (2016)	Scotland	N=64 Male = 62 Female = 2	42.3 years (11.9, 19-67)	1 high secure hospital and 2 medium secure hospitals	The Childhood Trauma Questionnaire[2]	The Clinical Outcomes in Routine Evaluation - Outcome Measure[13]	CTQ score predicted higher psychological distress in the present. No association between abuse and engagement was found.	53/64 reported at least 1 category of CA (82.8%) 48.4% reported CEA 43.7% reported CPA 46.9% reported CSA 51.6% reported CEN 56.2% reported CPN ('low to moderate' scale cut-off.)

								16/64 reported 2 categories of CA (25%) 10/64 reported 3 categories of abuse (15.6%) 7/64 reported 4 categories of abuse (10.9%) 12/64 reported all categories of abuse (18.8%)
Low et al. (2000)	England	N=50 All Female 32 8.2	32 years (8.2, range not given)	High Secure	Self-report: Traumatic Antecedents Questionnaire[7] 21 of the 50 participants declined to be interviewed, and so these patients were rated using the tool from case notes and interview with key workers.	Self- report: The Irritability, Depression and Anxiety Scale[14] The Beck Hopelessness Scale[15] The Dissociative Experiences Scale[3] The Suicide Ideation Scale[16] The impulsiveness subscale from the Impulsiveness (IVE) Questionnaire[17]	Sexual abuse not significantly associated with dissociation in inpatients. Sexual abuse was associated with higher rates of self-harm. 2 significant models were found to map the path from sexual abuse to self-harm; via dissociation, and also via reduced self-esteem.	Non-harmers: 46% had history of CSA 30% had a history of CPA Infrequent harmers: 55% had history of CSA 50% had history of CPA Frequent harmers: 80% had history of CSA 60% had history of CPA

Spitzer et al. (2006)	Germany	N=32 Male = 28 Female = 4	36.9 years (11.8, 20-61)	1 maximum security hospital	Self-report: The Childhood Trauma Questionnaire (CTQ)[2] Expert rating: from file review	The Structured Interview for Disorders of Extreme Stress (SIDES)[18]	From expert rating, CEN and CEA were associated with current PTSD diagnosis, though neither reached statistical significance. From self-report, the PTSD group scored significantly higher on the CPA scale.	By expert rating; 68.8% had CPA (22/32) 46.8% had CSA (15/32) 68.8% had CEA (22/32) 40.6% had CPN (13/32) 59.3% had CEN (19/32) From self-report; 40.6% reported CPA (13/32) 37.5% reported CSA (12/32) 50% reported CEA (16/32) 56.3% reported CPN (18/32) 71.9% reported CEN (23/32)
Stinson, Quinn, and Levenson (2016)	USA	N=381 Male= 339 Female= 41	(At data collection) 43.0 years (12.26, 22-75)	Forensic Psychiatry Inpatients – Security level not described	File review: Presence or absence of childhood	Formal diagnosis From file review: History of suicide attempts	Childhood abuse was associated with increased self-harm/suicide risk. Analysed alone, CAE and CPA were not associated	75.1% (n=286) reported at least one experience of abuse or maltreatment

		Trans=1			adversity, specifically: CEA CPA Intra-familial CSA Extra-familial CSA CPN Parental substance abuse	Self-harming behaviour	with increased suicide/self-harm risk.	19.9% reported 4 or more types of abusive experience out of the 6 included
Timmerman and Emmelkamp (2001)	Netherlands	N=39 (+192 prison inmates) All male	34.5 years (8.9, 21-66)	State Hospital	Self-report: that participants indicated whether they had experienced any of the abuse types presented to them (sexual abuse (incestuous and extrafamilial), emotional abuse, severe physical injury, or war-related trauma.	Self-report: Dissociation Questionnare (DIS-Q)[19] Semi-structured interview: Forensic patients were diagnosed using the International Personality Disorder Examination (IDPE)[20]	CSA is significantly associated with borderline personality pathology, but not existing diagnosis. CEA was not significant associated with BPD diagnosis.	CEA = 48.6% (18/37) CSA=40.5% (15/37) CSA (intrafamilial)=24.3% (9/37) CSA (extrafamilial)=35.1% (13/37) At least 1 trauma (including non-child abuse traumas; serious physical injury or war)=75.7% (28/37)

Rutherford and Taylor (2004)	England	N=60 All Female	Combined age not reported Mental Illness Group= 31.5 years (SD not provided, range 21-73 years) PD group= 29.3 years (SD not provided, range 19-43 years)	Study included women transferred from prison to any level of secure hospital	File review: Previous victimisation (physical or sexual abuse) is listed within the extracted data, however no further detail is given	File review: Unclear whether existing formal diagnoses were used, or whether the researchers diagnosed based on file review.	Ps with PD diagnoses were more likely to have experienced childhood sexual abuse than those with MI diagnoses.	23% of the total sample reported CSA (13/57; missing cases appear to be due to missing data) 9% of the Mental Illness group reported CSA (3/34) 48% of the Personality Disorder group reported CSA (12/26) Physical abuse was also reported as collected; however, no incidence data or analysis is reported.

*Note. P = Participants, N= number of participants, SD = Standard Deviation, CA = Childhood Abuse, CPA=Childhood Physical Abuse, CSA = Childhood Sexual Abuse, CEA = Childhood Emotional Abuse, CPN = Childhood Physical Neglect, CEN = Childhood Emotional Neglect, CN = Childhood Neglect (Unspecified), PD = Personality Disorder, BPD = Borderline Personality Disorder, ASPD = Antisocial Personality Disorder, PTSD = Post-Traumatic Stress Disorder, C-PTSD = Complex Post-Traumatic Stress Disorder. *= Significance values and effect sizes of specific statistical analyses to be presented in full later during evidence synthesis.*

Superscript Citations: 1 (Hare, 1991); 2 (Bernstein et al., 1994); 3 (Bernstein and Putman, 1986); 4 (Isele et al., 2014); 5 (Teicher and Parigger, 2011); 6 (Wechsler, Coalson, and Raiford, 2008); 7 (Herman et al., 1989); 8 ((DAM-IV; American Psychiatric Association, 2000); 9 (Mollica et al., (1987); 10 (Beck et al (1961); 11 (Webster, Douglas, Eaves, and Hart (1997); 12 (de Vogel et al., 2012; de Vogel et al., 2014); 13 (Evans et al., 2002); 14 (Snaith, Constantopoulos, Jardine, and McGuf□n, 1978); 15 (Beck, Weissman, Lester, and Trexler, 1974); 16 (Beck, Kovacs, and Weissman, 1979); 17 (Eysenck and Eysenck, 1991); 18 (Pelcovitz et al., 1997); 19 (Vanderlinden et al., 1993); 20 (Diekstra et al., 1993).

Methodological Quality Assessment

A summary of the individual item ratings for each study is presented in Tables 3 and 4. The evaluation showed that the most significant areas of weakness within the included papers as a group were in the measurement of both psychopathology and child abuse history, in the handling of confounding variables, and in the reporting of results.

Four of the studies received a "Partial" or "Unclear" rating for their measurement of psychopathology. One cause for this was related to poor specificity; in two studies psychopathology was operationalised as the presence of at least one attempted suicide or episode of self-harming behaviour, without any reference to how long ago this occurred (Dudeck et al., 2016; Stinson, Quinn, and Levenson 2016). Although the presence of these within someone's history continue to constitute a significant predictor for future self-harming or suicidal behaviour (Hawton et al., 2012; Mars et al., 2019), which justified their inclusion in the review, the potential for these periods of intense distress to have been many years previously or potentially prior to adulthood, remains. The remaining two studies which were rated lower in this area were so rated for different reasons. Eckert, Schel, and Kennedy (2017) examined factors associated with being transferred into specialist long-term forensic care; for the purposes of this review transfer to long-stay care was conceptualised as indicating poorer mental health, as it is described as occurring when attempts at rehabilitation have been unsuccessful, and attention is instead turned to quality of life and stabilisation. However, in the absence of a more direct measure of psychopathology, this is a somewhat indirect measure. Finally, Rutherford and Taylor (2004)'s measurement of psychopathology was the patients' legal Mental Health Act classifications of "personality disorder" or "mental illness". By their own description, these classifications are of questionable validity, and weakened further by the descriptions of the poor specificity and variable quality of recorded information upon which the related diagnoses were made. The remaining studies made use of either

formal diagnosis, or some validated measure of psychopathology. Though these are not infallible, they are at least more easily replicable and can be examined for validity or generalisability.

There was considerable variability in how participants' history of childhood abuse was measured; four studies used only a self-report measure, six measured this through a review of case notes, and three used a combination of these two methods. Each of these methods have weaknesses. Self-report measures of abuse may be impacted by participant's willingness to disclose abusive experiences, whether they perceived their experiences to be abusive, and the potential for current psychopathology to influence recall or interpretation of their childhood experiences (Briere, 1992). Research regarding the reliability of psychiatric patients' reports of abuse is mixed; some have concluded they are generally reliable (Read et al., 2008), including in patients experiencing psychosis (Fisher et al., 2011), however others have found evidence of significant underreporting (Dill et al., 1991; Everson et al., 2008). Establishing a history of childhood abuse from case file review may be subject to similar biases, particularly if the information within a file was originally gathered through interview with the individual in the past. This may be mitigated by the presence of additional verified source material, such as police records or child protection documentation, however as many cases are not disclosed or discovered at the time (Bottoms, Rudnicki, and Epstein (2007), it is likely that such additional sources will be absent for many. In addition to this, several studies which used file review to ascertain childhood abuse histories did not clearly report the definitions of childhood abuse they used, or the processes by which the information was extracted and decisions made, which is a significant concern both in terms of information bias leaving significant room for human error and variability in decision making, and also in making the processes used unavailable for scrutiny or replication.

Few studies clearly outlined confounding variables relevant to their specific questions of interest, and fewer still reported any detailed plan to manage the impact of these. The majority of the studies used bivariate correlational analyses, which do not have any inbuilt processes by which confounding

variables can be identified or their impact controlled for. Though a number of the studies made use of regression analyses, few mentioned specifically which, if any, variables were being controlled for.

A significant issue across almost all included studies was weakness in the reporting of results; specifically, the non-reporting of non-significant results, and the lack of effect size calculations. Rutherford and Taylor (2004) reported collecting data regarding physical abuse experiences, and analyses may have been run, however no further mention is made of this. More common was some brief mention of a given association being found non-significant, in the absence of specific results. This is potentially detrimental to the research base, as it adds significant bias to the available data for meta-analysis, and may obscure interesting and relevant results which were found statistically non-significant due to a lack of power in the study rather than the lack of a relationship being present. This issue is compounded by the widespread lack of effect size calculation; only Beer el at (2009) and Macinnes, Macpherson, Austin, and Schwannauer (2016) reported effect sizes for all of their analyses. Five studies reported some effect sizes, usually only for statistically significant results, and six papers reported no effect sizes at all. Of those six, only one paper reported sufficient data for effect sizes to be calculated for all of their analyses (Cima et al., 2001).

A grouping procedure was created for the purposes of this review to compare the studies' global performance. By assigning a value of two to a rating of "no" for areas not covered, and a value of one to "partial" or "unclear" ratings, each study could be given a cumulative score representing areas of weakness. Three groups were then created; papers rated as globally "good" who scored fewer than two points, papers rated as "adequate" who scored five or fewer points, and "poor" for studies who scored six or more points. Using this methodology, five papers were found to be "good", five papers "adequate", and three papers "poor", as indicated below.

Table 3.

Summary of Quality Assessment; Case-Control Studies

Study	Comparability of Groups	Matching of Groups	Criteria for Sample Identification	Child Abuse Measure	Consistency of Measurement	Confound identification	Confound management	Mental Health Measure	Exposure Period Validity	Statistical Analysis	Quality Rating
Beer (2009)	Yes	Unclear	Yes	Unclear	Yes	Partial/Unclear	Partial	Yes	Yes	Yes	Adequate
Karsten, de Vogel, and Lancel (2015)	Unclear	Yes	Yes	Unclear	Yes	Unclear	Unclear	Yes	Not Applicable	Partial	Good

Table 4.

Summary of Quality Assessment; Cross-Sectional Studies

Study	Inclusion/Exclusion criteria	Subjects and Setting Description	Child Abuse Measure	Condition Group Allocation	Confound identification	Confound management	Mental Health Measure	Statistical Analysis	Quality Rating
Bohle and de Vogel (2017)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partial	Good
Cima et al. (2001)	Unclear	Unclear	Yes	Unclear	Unclear	Unclear	Yes	Partial	Poor
Dudeck et al. (2016)	Unclear	Yes	Yes	Yes	Yes	Yes	Partial	Partial	Adequate
Eckert, Schel, Kennedy, and Bulten (2017)	Yes	Yes	Unclear	Yes	Yes	Unclear	Unclear	Partial	Adequate

Garieballa et al. (2006)	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Partial	Good
Macinnes, Macpherson, Austin, and Schwannauer (2016)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partial	Good
Low et al. (2000)	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Partial	Good
Spitzer et al. (2006)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partial	Good
Stinson, Quinn, and Levenson (2016)	Yes	Yes	Partial	Partial	Partial	Unclear	Partial	Partial	Poor
Timmerman and Emmelkamp (2001)	Unclear	Partial	Unclear	Yes	Partial	Partial	Yes	Partial	Poor
Rutherford and Taylor (2004)	Yes	Yes	Unclear	Yes	Unclear	Unclear	Unclear	Partial	Adequate

Synthesis of Results

Grouping Study Outcomes. The papers within this review used a range of different measures of childhood abuse and psychopathology, with varying validity. They also varied in which types of childhood abuse they examined, covering Childhood Sexual Abuse (CSA), Childhood Physical Abuse (CPA), Childhood Emotional Abuse (CEA), Childhood Physical Neglect (CPN), Childhood Emotional Neglect (CEN), and some cumulative measure of abuse which recorded exposure to multiple types of abuse. The results of the studies have therefore been synthesised and evaluated according to each type of childhood abuse measured, in order to allow for any differences in the effects of abuse types to be identified, as previously indicated in similar reviews (Bowen et al., 2018).

Regarding adult psychopathology, the studies also varied significantly in their focus. For the purpose of this review, outcomes of mental illness have been grouped, to allow for synthesis of outcomes, into common psychiatric/psychological concepts from ICD-10 and DSM-V; post-traumatic stress disorder, personality disorders, self-harming behaviour and suicidality, dissociation and psychological distress (low mood and anxiety). One study identified participants with more significant psychopathology by their transfer from regular rehabilitative treatment hospitals to a long-stay psychiatric facility which focussed on stabilisation and quality of life rather than rehabilitation.

The key relevant findings from the included 13 studies are laid out in Table 5, organised first by the type of childhood abuse examined, and then by the category of psychopathology outcome. Both significant and insignificant results are reported where available, along with the information regarding statistical significance and effect sizes for each result.

Table 5.

A Summary of the Key Relevant Findings from the 13 Studies Included in the Review

Abuse Category	Outcome group	Statistically Significant Findings *level of significance, effect size category**	Statistically Non-significant Findings *Level of significance, effect size category**
Childhood Physical Abuse	PTSD	Higher CPA scores on the CTQ were associated with C-PTSD. *P=.017, ES=large** (Spitzer et al., 2006)	Physical abuse in early, middle, or late childhood was not associated with PTSD (Garieballa et al., 2006)
			Self-report categorical presence of CPA was not associated with C-PTSD. *P=.119, ES=moderate***. (Spitzer et al., 2006)
			Expert rating of the presence of CPA was not associated with C-PTSD. P=.68, ES=moderate**. (Spitzer et al., 2006)
	BPD		For the combined male and female group, CPA was not associated with BPD. (Bohle and de Vogel (2017)
			The BPD group did not have higher rates of CPA than the non-BPD group. (Karsten, de Vogel, Lancel (2016)
	ASPD	Within the male group, CPA was significantly associated with ASPD. *P=.001, ES=Large***. (Bohle and de Vogel, 2017)	Within the female group, CPA was not significantly associated with ASPD. *P=.187* (Bohle and de Vogel, 2017)
	Psychopathy	Within the male group, CPA was significantly associated with psychopathy. *P=.001.* (Bohle and de Vogel, 2017)	
	Self-harm or Suicide		A significant explanatory model for self-harming was rerun with CPA, and found insignificant. (Low et al., 2000)
			CPA and suicide attempts were not significantly correlated. *P>.05, ES=below small*** (Stinson et al., 2016)
Childhood Sexual Abuse	PTSD		Sexual abuse in early, middle, or late childhood was not associated with PTSD (Garieballa et al., 2006)
			Self-report categorical presence of CSA was not associated with C-PTSD. *P=.198, ES=moderate***. (Spitzer et al., 2006).
			Dimensional score of CSA was not associated with C-PTSD. *P=.224, ES=small* (Spitzer et al., 2006).

			Expert rating of the presence of CSA was not associated with C-PTSD. *P=.755, ES=below small*** (Spitzer et al., 2006)
	BPD	Within the female group, CSA was significantly associated with BPD. *P=.001, ES=Moderate**.* (Bohle and de Vogel, 2017)	Within the male group, CSA was not significantly associated with BPD. (Bohle and de Vogel, 2017)
		Those diagnosed with BPD were more likely to have experienced CSA than those without BPD. *P<.001, ES=moderate**.* (Karsten, de Vogel, Lancel, 2016)	
		Those in the Personality Disorder group were more likely to have experienced CSA than the Mental Illness group. *P<.001, ES=Large*** (Rutherford and Taylor, 2004)	
		CSA was associated with actual or probable BPD diagnosis. *P=.03.* Timmerman and Emmelkamp (2001)	
	ASPD		Across both genders, CSA was not significantly associated with ASPD. (Bohle and de Vogel, 2017)
	Psychopathy		Across both genders, CSA was not significantly associated with Psychopathy. (Bohle and de Vogel, 2017)
	Self-harm or Suicide	CSA predicted self-harming group membership. *P<.05, E=approaching small.* (Low et al., 2000)	
		A significant pathway was found from CSA through dissociation to self-harm. CSA to dissociation (*p<.05, ES=small*), dissociation to self-harm (*p<.05*) (Low et al., 2000)	
		A significant pathway was found from CSA through dissociation to self-harm. CSA to self-esteem *(p<.05, ES=small*), self-esteem to self-harm *(p<.05, E=approaching small).* (Low et al., 2000)	
		Intra-familial CSA was associated with suicide/self-harm. *P<.01, ES=small***. (Stinson et al., 2016)	
		Extra-familial CSA was associated with suicide/self-harm. *P<.05, ES=small**.* (Stinson et al., 2016)	
		Any CSA was associated with suicide/self-harm. P<.01, ES=moderate**. (Stinson et al., 2016)	
	Dissociation	CSA was associated with dissociative experiences. P<.05. (Low et al., 2000)	CSA was not significantly associated with dissociative experiences. (Timmerman and Emmelkamp, 2001)

		A significant pathway was found from CSA through dissociation to self-harm. CSA to self-esteem (*p<.05, ES=small*), self-esteem to self-harm *(p<.05, ES=approaching small).* (Low et al., 2000)	
	Transfer to long-stay facility		Those in the long-stay facility were not significantly more likely to have CSA. *P=.25, ES=small***. (Eckert, 2017)
Childhood Emotional Abuse	PTSD	Current PTSD was associated with CEA in middle childhood. *P<.05, ES=large**.* (Garieballa et al., 2006)	Current PTSD was not associated with CEA in early childhood. (Garieballa et al., 2006)
			Current PTSD was not associated with CEA in late childhood. (Garieballa et al., 2006)
			Self-report of categorical presence of CEA was not associated with PTSD. *P=.20, ES=moderate**.* (Spitzer et al., 2006)
			Dimensional score of CEA was not associated with PTSD. *P=.256, ES=small.* (Spitzer et al., 2006)
			Expert rating of the presence of CEA was not associated with PTSD. *P=.068, ES=moderate**.* (Spitzer et al., 2006)
	BPD	Within the female group, CEA was associated with BPD. *P=.001, ES=moderate**.* (Bohle and de Vogel, 2017)	Within the male group, CEA was not associated with BPD. (Bohle and de Vogel, 2017)
		The BPD group more often had CEA than the non-BPD group. *P=.001, ES=moderate***. (Karsten, de Vogel, Lancel, 2016)	CEA was not significantly associated with BPD presence or absence. (Timmerman and Emmelkamp, 2001)
	ASPD		Across both genders, CEA was not significantly associated with ASPD. (Bohle and de Vogel, 2017)
	Psychopathy		Across both genders, CEA was not significantly associated with Psychopathy. (Bohle and de Vogel, 2017)
	Self-harm or Suicide		CEA was not significantly associated with having made a suicide attempt. *P>.05, ES=below small**.* (Stinson et al., 2016)

Childhood Neglect (unspecified)	PTSD	Current PTSD was significantly associated with neglect in early childhood. *P<.05, ES=Large**.* (Garieballa et al., 2006)	Current PTSD was not associated with neglect in middle childhood. (Garieballa et al., 2006)
		CN (unspecified) was associated with suicide/self-harming behaviour. *P<.01, E=small*.* (Stinson et al (2016)	Current PTSD was not associated with neglect in late childhood. (Garieballa et al., 2006)
CPN	PTSD		Self-report of the categorical presence of CPN was not significantly associated with PTSD. *P=.524, ES=small**.* (Spitzer et al., 2006)
			Dimensional score of CPN were not associated with PTSD. *P=.524, ES=small.* (Spitzer et al., 2006)
			Expert rating of the presence of CPN was not associated with PTSD. *P=.341, ES=small**.* (Spitzer et al., 2006)
	BPD		For the combined male and female group, CPN was not associated with BPD. (Bohle and de Vogel (2017)
	ASPD		For the combined male and female group, CPN was not associated with ASPD. (Bohle and de Vogel (2017)
	Psychopathy	For the total study sample, CPN was associated with Psychopathy. *P=.002* (Bohle and de Vogel, 2017)	
		For the Female group alone, CPN was associated with Psychopathy. *P=.040* (Bohle and de Vogel, 2017)	
		For the Male group alone, CPN was associated with Psychopathy. *P=.015* (Bohle and de Vogel, 2017)	
Childhood Emotional Neglect	PTSD		Self-report of the categorical presence of CEN was not significantly associated with PTSD. *P=.457, ES=small**.* (Spitzer et al., 2006)
			Dimensional score of CEN were not associated with PTSD. *P=.509, ES=below small.* (Spitzer et al., 2006)
			Expert rating of the presence of CEN was not associated with PTSD. *P=.051, ES=large***. (Spitzer et al., 2006)

	Transfer to Long-Stay facility	Those in the long-stay were significantly more likely to have CEN. *p≤.01, ES=small.* (Eckert , 2017)	
		CEN predicted long-stay facility group membership. *p≤.01, ES=small* (Eckert et al., 2017)	
Any Abuse	BPD	For the female group, CA was associated with BPD. *P=.039.* (Bohle and de Vogel, 2017)	For the male group, CA was not associated with BPD. (Bohle and de Vogel, 2017)
		Those with BPD were more likely to have experienced CA than those without BPD. *P=.007, ES=small**.* (Karsten, de Vogel, and Lancel, 2016)	
	ASPD	For the male group, CA was associated with ASPD. *P=.005.* (Bohle and de Vogel, 2017)	For the female group, CA was not associated with ASPD. (Bohle and de Vogel, 2017)
	Psychopathy	For both genders combined, CA was associated with psychopathy. *P<.001, E=moderate*.* (Bohle and de Vogel, 2017)	
		For the female group, CA was associated with psychopathy. *P=.006, E=moderate** (Bohle and de Vogel, 2017)	
		For the male group, CA was associated with psychopathy. *P<.001, ES=moderate**.* (Bohle and de Vogel, 2017)	
	Self-harm or Suicide	Self-harm was associated with either CPA or CSA. *P=0001, ES=Large.* (Beer et al., 2009)	A significant explanatory model for self-harming was rerun with CPA-or-CSA combined, and found insignificant. (Low et al., 2000)
Cumulative Abuse	PTSD	Those with PTSD had a significantly higher number of traumatic childhood experiences. *P<.05*. (Garieballa et al., 2006)	CTQ total score was not significantly associated with C-PTSD. *P=.200, ES=moderate.* (Spitzer et al., 2006)
	BPD	BPD was associated with having been abused across more than 1 category. *P<.001, ES=moderate**.* (Karsten, de Vogel, Lancel, 2016)	
	Self-harm or Suicide	ACE scores were significantly associated with having attempted suicide. *P=.016, ES=large**.* (Dudeck et al., 2016)	

		ACE scores were a strong predictor of suicide. *P<.05, ES=small* (Dudeck et al., 2016)	
		For each unit increase in cumulative adversity, the likelihood of suicide/self-harm increased by 22.4% (controlling for age). *P=.001,* ES=below small (Stinson et al., 2016)	
	Dissociation		There was no association between dissociation and CTQ scores. *P>.05, ES=below small****. (Cima et al., 2001)
			There was no association between dissociation and expert rating of overall abuse experiences. *P>.05, ES=small**.* (Cima et al., 2001)
	Psychological Distress	Psychological distress was associated with greater cumulative childhood abuse score*. P<.01.* (Macinnes, Macpherson, Austin, and Schwannauer, 2016)	
		Total CTQ score predicts psychological distress. *P=.01, ES=small.* (Macinnes, Macpherson, Austin, and Schwannauer, 2016)	

N.B. p=statistical significance value, ES=effect size strength category. Effect sizes marked with a double asterisk were not reported within their source papers, and were calculated for the purposes of this review. Where p values and effect size categories are not present, these were not reported within the papers, and insufficient detail was provided for them to be calculated.

Prevalence of Childhood Abuse

Reported prevalence rates of childhood abuse varied significantly across the 13 studies included in the review, with the range of definitions and measures used making direct comparisons difficult. When examining childhood trauma as a combined category, prevalence rates ranged from 100% of the sample (Garieballa et al., 2006), though it must be noted that they included within this "other trauma" for example natural disasters, to 44.8% (Beer et al., 2009), again noting that this study only examined the prevalence of childhood sexual or physical abuse. When the range of abusive experiences included neglect, prevalence rates described were 72.5% for women and 62.8% for men (Bohle and de Vogel, 2017), 66% (Dudeck et al., 2016), 87.7% of those with BPD and 64.2% of those without BPD (Karsten, de Vogel, and Lancel (2015), 82.8% (Macinnes et al., 2016), 75.1% (Stinson, Quinn, and Levenson (2016), and 75.7% including 2 non-child abuse traumas within their measurement (Timmerman and Emmelkamp, 2001).

Some studies reported abuse category rates separately. Low et al. (2000) reported both the highest rate of CPA, at 60% of their frequent self-harming group, and the lowest rate at 30% of their non-self-harming group. Rates of CSA ranged from 51.3% of their female sample (Bohle and de Vogel, 2017), to 23% (Rutherford and Taylor, 2004). Rates of CEA ranged from 64.2% (Eckert et al., 2017) to 48.4% (Macinnes et al., 2016). Rates of CPN ranged from 56.3% by self-report (Spitzer et al., 2006) to 10.1% of Bohle and de Vogel's (2017) male subsample. Rates of CEN ranged from the self-reported rate of 71.9% (Spitzer et al., 2006), to 51.6% (Macinnes et al., 2016), both in mixed but predominantly male samples).

Most of the studies reported some cumulative rate of childhood abuse. At the higher end of these reported figures, Dudeck et al. (2016) reported that 4% of their sample had experienced 8-9 types of childhood abuse, 18.8% of Macinnes et al. (2016)'s sample reported all 5 categories of abuse measured, and 19.9% of Stinson, Quinn, and Levenson's (2016) sample reported 4 or more types of

abusive experience. Additional details of the prevalence rates reported within each sample can be found in Table 2.

Any abuse

Five studies reported results regarding combined abuse types, or comparing a group which had experienced any abuse with those who had not. The majority of these results found significant associations between CA and later psychopathology. Bohle and de Vogel (2017) found that CA was associated with BPD in their female group, but not in their male group. When examining ASPD, the effects were reversed, with male patients showing a significant association between CA and ASPD, but this was not significant for the female patients. When they examined scores on a psychopathy measure, Bohle and de Vogel (2017) found that a significant and moderately strong association with CA could be seen in both men and women. Karsten, de Vogel and Lancel (2016)'s results were in line with this general picture; reporting that those with BPD were more likely to have experienced CA than those who did not.

Beer et al. (2009) combined CSA and CPA for all their analyses, such that the individual contributions of each were not possible to examine. They found that self-harm was strongly associated with having a history of either CSA or CPA. Low et al. (2000) also ran an analysis in which they combined CPA and CSA, and found it non-significant, in contrast with their significant results when examining CSA alone.

Childhood Physical Abuse

Seven studies examined the association of CPA and adult psychopathology. Bohle and de Vogel (2017) found significant associations for men between CPA and ASPD, with a large effect size, and between CPA and Psychopathy. Interestingly, they did not find significant associations for women between CPA and ASPD, nor a significant association between CPA and BPD in either men or women. Unfortunately, the authors did not report the specific results of these analyses, nor sufficient

information for the effect sizes of these relationships to be computed. The non-significant association between CPA and BPD was echoed by Karsten et al. (2016), though again this is limited by a lack of specific statistical reporting.

Spitzer et al. (2006) reported mixed results regarding the association between CPA and C-PTSD in adulthood, varying based on which measure of CA was analysed. Self-reported categorical presence or absence of CPA was not associated with C-PTSD, nor was expert rating of the presence of CPA, though both of these analyses showed moderate effect sizes which implies there may be some relationship that failed to reach statistical significance. The relationship between self-report dimensional scores of CPA and C-PTSD was statistically significant, with a corresponding large effect size. Non-significant results regarding the association between CPA and PTSD were reported by Garieballa et al. (2006), who found that CPA in any of the 3 stages of childhood examined was not associated with PTSD.

With regards to self-harming behaviour or having a history of suicide attempts, two studies examined this relationship and both reported non-significant results. Low et al. (2000) did not report the specifics of their analyses, instead explaining that the significant pathway they reported from CSA to self-harm was re-run with CPA as the predictor variable, but all pathways became insignificant. Stinson et al. (2016) reported that there was no significant association between CPA and having previously made a suicide attempt, and found a below significant effect size.

Childhood Sexual Abuse

10 studies examined the association between CSA and adult psychopathology. BPD was an examined outcome in 4 studies, with support for a significant association found in all of these studies, and moderate or large effect sizes where available (Bohle and de Vogel, 2017; Karsten et al., 2016; Rutherford and Taylor, 2004; Timmerman and EmmelKamp, 2001). Interestingly, Bohle and de Vogel (2017) found a strong significant association between CSA and BPD diagnosis within their female participants, however reported the only non-significant finding in the review for this relationship

when it was examined in their male participants. They further reported no significant association between CSA and ASPD or Psychopathy in either the male or female participants.

Two studies examined the relationship between CSA and self-harming or suicide, with all reported analyses being significant though effect sizes were mostly small. Stinson et al. (2016) found that both intra and extra-familial CSA was associated with suicide or self-harming history in their mixed gender sample, with the intra-familial CSA being more significantly associated but both having small effect sizes. When combined, the association was highly significant and of a moderate effect size. Low et al. (2000) ran path analyses to model the pathway from CSA through dissociation or reduced self-esteem to self-harming in adulthood. Both pathways were significant, though the pathway through dissociation was stronger.

In contrast, Timmerman and Emmelkamp (2001) reported a non-significant association between CSA and dissociative experiences, though the lack of detail in their paper limits deeper exploration of their results. Finally, Eckert et al. (2017) found that the patients within the long-stay facility group were not more likely to have CSA histories, though a small effect size was present.

Childhood Emotional Abuse

Six studies in the review examined the impact of CEA. Two studies looked at its relationship with PTSD, with mixed results. Spitzer et al. (2006) did not find any significant associations between CEA and PTSD, though effect size calculations suggest there may be some relationship which the study did not capture. When the presence or absence of CEA was examined, neither self-report not expert rating was statistically significant, but both had moderate effect sizes. When examined dimensionally, the association was insignificant but with a small effect size. Garieballa et al. (2006) similarly reported a complex picture, with current PTSD not associated significantly with CEA during early or late childhood, but being significantly associated with CEA during middle childhood, with a large effect size.

With regards to BPD, Bohle and de Vogel (2017) reported a significant and moderate strength association between CEA and BPD in their female participants, but a non-significant association for this relationship in the male sample. Karsten et al. (2016)'s all-female sample was in line with this, with a highly significant and moderate strength association reported. Similarly, Timmerman and Emmelkamp's (2001) all-male sample resulted in a non-significant association between CEA and BPD. Bohle and de Vogel (2017) further reported no significant association between CEA and ASPD or psychopathy in either gender.

Finally, Stinson et al. (2016) reported a non-significant association between CEA and a history of suicide attempts, with the effect size also not suggesting any association.

Childhood Neglect

Childhood Neglect; Unspecified. Garieballa et al. (2006) examined the relationship between childhood neglect and current PTSD, though did not describe within their paper how they had defined childhood neglect. This prevents the integration their findings into the wider literature examining neglect, as it is not clear whether they examined physical neglect, emotional neglect, or both. They reported a significant association between neglect in early childhood and current PTSD, with a large effect size, but non-significant associations if the neglect occurred in middle or late childhood. They do not present any theories as to why this might be, however it is possible that such early neglect can increase the risk of developing PTSD later in life through impaired coping skills in adulthood (Ehlers and Clark, 2000), or perhaps through an associated insecure attachment style (Woodhouse, Ayers, and Field, 2015).

Childhood Physical Neglect. Three studies examined the association between CPN and adult psychopathology. Across the different measurements of CPN, Spitzer et al. (2006) found non-significant associations with PTSD, and though small effect sizes were present for all of these associations. With regards to personality disorders, Bohle and de Vogel (2017) reported non-significant associations between CPN and BPD or ASPD for both men and women. However, they

found significant associations between CPN and higher scores of Psychopathy for men and women, together and when analysed separately. It is notable however that the relationship appeared weaker in women, though no effect sizes were reported or calculatable.

Childhood Emotional Neglect. Two studies examined CEN separately to other forms of abuse, with differing results. Eckert et al. (2017) found that those in the specialist long-term forensic facility were significantly more likely to have histories of CEN indicated within their case files, and further that CEN predicted long-stay facility group membership. Spitzer et al. (2006) measured CEN in multiple ways; both through self-report and by expert rating from case file review. They reported non-significant associations between self-report measures of CEN, with small or very small effect sizes. Of note however, the association between expert rating of whether CEN had been present and later PTSD had a large effect size, and a p value of .051. This may suggest that there was an association to be seen in this study, though the authors did not report effect sizes within their paper and so were not able to discuss this.

Cumulative Abuse

Five studies included examination of the cumulative impact of experiencing multiple types of childhood abuse. Only one of these found a non-significant result; Spitzer et al. (2006) reported that the self-report score on the Childhood Trauma Questionnaire (CTQ) was not significantly associated with C-PTSD, however they reported a moderate effect size for this relationship.

Garieballa et al. (2006) reported that those with PTSD reported significantly higher numbers of traumatic childhood experiences, and Karsten et al. (2016) found a moderate strength significant association between BPD and having experienced multiple abuse types. Dudeck et al. (2016) used ACE scores to measure cumulative abuse, finding a significant association between higher ACE scores having made a suicide attempt, and further than ACE scores were a strong predictor of suicide attempt history. Strikingly, Stinson et al. (2016)'s logistic regression found that for each additional

type of abuse experienced, the likelihood of suicide or self-harm increased by 22.4%, controlling for age.

Cima et al. (2001) examined the association between self-reported abuse scores on the Childhood Trauma Questionnaire (CTQ) and expert rating of abuse experiences from file review, and later dissociative experiences. They reported that for both of these measurement methods, the relationship was not significant, with small and very small effect sizes.

Finally, Macinnes et al. (2016) reported the only use of a non-specific measure of psychopathology; the CORE-OT, which measures general psychological distress. They found significant associations between higher cumulative abuse scores and psychological distress, and further found that cumulative childhood abuse scores predicted greater psychological distress in adulthood.

Discussion

The prevalence of CA reported across studies within the forensic inpatient population was high, ranging from 62.8% to 87.7% of samples and sub-samples; significantly higher than the general population, which from World Health Organisation surveys across countries are reported to vary from 5.3-10.8% for CPA, 0.6-2.4% for CSA, and 3.6-5.2% for CN (Kessler et al., 2010). The prevalences reported within this review are more comparable to those found within a similar review focussed on the prison population (Bowen et al., 2018), though the reported rates had considerable variability between studies. As the studies varied with regards to country of setting, definition of childhood abuse used, methodology of measurement, sample size, and spanned a nearly 20-year date range, some level of variability is to be expected.

There was significant variability in terms of the psychopathology outcomes examined and reported within the studies, however consistent with research in the community (Carr et al., 2013) childhood abuse was found in the majority of the papers to be associated with the presence or severity of adult mental health difficulty. Interestingly, there was variability in terms of the specific psychopathology

outcomes which were associated with each subtype of childhood abuse. Some evidence was found regarding the association of CPA to a variety of mental health outcomes; specifically, PTSD, ASPD, and Psychopathy. CSA was strongly linked to BPD, as well as self-harming or suicidal behaviour, which is in line with the evidence within the general psychiatric populations (Ogata et al., 1990; Mina and Gallop, 1998). Although examined in three studies, evidence regarding a link between childhood abuse and dissociation was not found. There was some evidence for a link between CPN and Psychopathy. Having experienced any abuse was linked with a number of psychopathologies; BPD, Psychopathy, self-harm, and ASPD. Cumulative abuse was found to be associated with all examined mental health outcomes, with the exception of dissociation.

When examining the results as a whole, differences in the findings when split by gender are evident. There was evidence to support a link between various types of abuse and BPD in women, but not in men. Conversely, evidence was apparent for various types of abuse and ASPD in men, but not women. This could be related to a difference in the likelihood of men or women being diagnosed with either disorder, even with the same apparent difficulties (Skodol and Bender, 2003), or to a genuine gender difference in the impact of childhood abuse on men and women's adult psychopathology caused by some internal difference, or to the impact of societal expectations and modelling (Paris, 2000). One way to begin to elucidate this might be to focus on measuring difficulties or psychological distress, rather than relying on diagnoses which may be influenced by gender biases. There could also be an effect related to the number of studies being conducted examining the relationship between childhood abuse and a given personality disorder in men or women, perhaps also related to gender biases in planning research. There was one study in this review which looked only at one gender and one personality disorder diagnosis; Timmerman and Emmelkamp (2001) examined the relationship between childhood abuse and borderline personality disorder in women. If more research is being conducted around a given relationship in a given population, it is more likely that evidence about its existence will be found.

Another area of particular interest was the significant evidence regarding experiences of multiple types of abuse, or cumulative abuse/trauma. Five of the 13 studies examined some form of cumulative abuse, however the definition used varied, spanning more than one type of abuse, to an aggregate score of different types of abuse experienced, to the use of a measure such as the Childhood Trauma Questionnaire (CTQ; Bernstein and Fink, 1998) which produces a total score which represents both the diversity and severity of abuse experienced. There was evidence supporting an association of cumulative abuse with a wide range of psychopathologies; BPD, PTSD, suicide and self-harm, and psychological distress. Dissociation was the only psychopathology examined in relation to cumulative abuse for which an association was not supported. Although Cima et al. (2001) reported non-significant results, there were several significant methodological weaknesses which may have influenced the study's ability to identify an association. Alternatively, there may be no association; a review of the literature within the prison population identified some evidence, however it was recognised as limited and requiring further study (Bowen et al., 2018). There are multiple explanations proposed within the literature regarding how cumulative abuse experiences may lead to poorer mental health. One theorised route is through the process by which having experienced childhood abuse increases the risk of being revictimized in adulthood (Widom, Czaja, and Dutton, 2008); as a person accumulates additional experiences of abuse and trauma, their risk increases and creates a vicious circle of compounding and increasing traumatic experiences through into adulthood (Briere, Kaltman, and Green, 2008). Another theory is that experience of multiple types of abuse in childhood has a unique and expansive developmental impact which creates a qualitatively different symptom profile than a single abuse experience, particularly in relation to negative impacts on multiple emotional and interpersonal domains (Cloitre et al., 2009). Van der Kolk (2005) proposed a diagnostic category to capture this phenomenon, called Developmental Trauma Disorder, which outlined the specific difficulties seen in chronically abused children. Schilling, Aseltine, and Gore (2008) suggest that it is not the increased number of types of abuse experienced which leads to worse outcomes, but rather that this tends to correlate with

increased severity of the abusive experiences which then predicts poorer mental health outcomes. Given that within this review, prevalence of cumulative abuse was as high as 19.9% of participants experiencing four or more types of abuse (Stinson, Quinn, and Levenson, 2016), it certainly appears that the forensic inpatient population is severely and multiply abused, and as such this area of research, for this population in particular, must be further investigated in order to allow forensic services to understand their patients, and direct resources appropriately.

A pattern across multiple studies was of insignificant statistical results accompanied by small, medium, or even large effect sizes. This indicates a potential widespread issue with underpowered analyses within this research area, perhaps resulting from the small sample sizes seen in the majority; indeed 9/13 had fewer than 100 participants, and 5/13 had 50 or fewer. It is increasingly acknowledged that as effect sizes provide important information regarding the magnitude of an association examined in research, the reporting of these alongside significance values is highly recommended (Kühberger, Fritz, and Scherndl, 2014), and yet of the 13 studies only two reported effect sizes for all conducted analyses, and only five papers reported effect sizes for at least some of their results.

Finally, it should be noted that when assessing the overall methodological quality of the included studies, two of the 13 were placed within the "poor" category as they had six or more quality indicators rated "partial/unclear". A further five studies had between three and five quality indicators not fully met. This indicates a level of overall methodological weakness that may have impacted the results described in each study, and therefore the conclusions of this review. Although the diversity of foci prevents greater direct comparison of findings, including consideration of the reliability of each study's findings according to their quality, this should be held in mind when examining the tentative conclusions drawn in this review.

Limitations

This review has several methodological limitations. Systematic reviews can be vulnerable to publication bias, in that papers reporting non-significant results are not published as frequently within all research areas including the psychological sciences (Kühberger, Fritz, and Lancel, 2014). The impact of publication bias here may be that the relationship between childhood abuse and adult psychopathology may be overestimated, with evidence suggesting the absence of a relationship not being included. It is also evident that the majority of included studies were conducted in relatively high-income countries. There is only one study which includes participants sampled from a low-income country, namely Sudan (Garieballa et al., 2006), which then make up 15/1712 participants. Further, certain specific countries, namely the United Kingdom, Germany, and the Netherlands make up the majority of the included studies, and while there is no suggestion that the same participants feature in multiple studies, this could reduce the overall generalisability of the findings. In line with this, due to the lack of translation resources, only studies published in English were included in the review, which will further have impacted this issue.

In contrast with the above, there are some inherent difficulties in including studies from across various cultures and legal systems, particularly when examining a population who are defined by contact with the legal and health care systems. Due to variation in the structures and practices of both of these systems across regions, there will be significant variation in the diagnostic practises, forensic psychiatric care, and treatment pathways for those with severe mental health difficulties who engage in criminal behaviour of some sort. This means that the samples included may not be as similar as assumed, introducing additional variability into an already heterogeneous group.

Despite specific and narrow inclusion criteria, there was great variety in the specific variables examined in each study, resulting in limited overlap which precluded meta-analysis.

All the studies within this review were of cross-sectional or case-control design. This is not unusual for reviews within this field (Bowen et al., 2018; Carr et al., 2013), as naturally research regarding the impact of childhood abuse on future outcomes is ethically limited in the forms it can take.

Retrospective studies, though unable to speak to the direction of relationships or to causation, are able to look back at the course of given difficulty, and examine the outcome at a given point. Prospective studies, though potentially able to speak to causation, are limited in the field of childhood abuse as once its existence is identified by services, a child should hopefully experience a cessation of the abuse, and supportive input such that their mental health outcome is significantly changed.

Future research

By necessity, this review only included studies which examined childhood abuse, however it is known that wider definitions of childhood adversity have also been linked to adult psychopathology (Merrick et al., 2017). Future research should consider both including a wider range of forms of childhood adversity in order to improve the knowledge around their impact, and also to allow for more nuanced examination of cumulative trauma to be possible. Given the range of evidence related to the various relationships between childhood abuse types and mental health outcomes, it would be beneficial to collect information about participant's experience of a range of abuse types, and to analyse and report these separately. This would allow for more specificity in the results produced. Further, it is important that researchers use standardised and preferably validated tools to establish the presence of childhood abuse, and that these are adequately described within the publication.

As previously mentioned, given the wide range of measures of psychopathology which appear to potentially result from childhood abuse, it may be of benefit for future research to measure the intensity or severity of various symptoms or difficulties, rather than relying solely on diagnostic labels. This would allow for the research base as a whole to be considered, rather than segmented to such an extent as to make drawing conclusions difficult. It would also improve the strength of the research to use well validated and widely used measures of psychopathology. Given the wide range

of potential outcomes of childhood abuse, significantly more research is needed in order to draw firmer, better evidenced conclusions.

The use of other categorical measures of mental health difficulty; namely the presence of a history of self-harming behaviour or attempted suicide is also problematic. A more useful approach was used by Low et al. (2000), who categorised their sample by the presence and then frequency of self-harming behaviours in the present, which is a more valid measure of psychological distress. Future research should consider a similar model, though could of course include historical behaviours as a variable if it is of particular relevance.

Finally, some interesting variability emerged within this review regarding gender differences, and the impact of cumulative abuse; as such, future research should consider these for further exploration.

Clinical implications

Internationally, there has been a growing recognition that trauma-informed care should be implemented across all healthcare settings, in recognition of the widespread impact of trauma. Within Scotland, the National Trauma Training Framework (NHS Education Scotland, 2017), which outlines new requirements that all workers across any setting should be skilled to an appropriate level based on the likelihood of their contact with individuals with trauma histories, and describes these levels of expertise. Training programmes are in place across settings and across the country, in order to educate staff to the required knowledge levels.

Beyond this, however, given the very high prevalence of childhood abuse evident within the forensic psychiatric population, it may be that some form of trauma treatment should be available for all inpatients within forensic care. Phased approaches to trauma have been found to be effective and are considered to be best practice (Cloitre et al., 2011). Stage 1 is described as “Safety and Stabilisation”, which focusses on improving basic distress tolerance and coping skills; such programmes could be of benefit to all patients with mental health difficulties, and may particularly

serve to stabilise those with trauma histories prior to any specific or targeted therapeutic work. Further, the impact of childhood trauma must be considered when care planning for individual patients, particularly in forensic inpatient settings where the relative likelihood of crisis and restraint procedures being required are higher by virtue of the nature of the setting and population, and re-traumatisation is a real possibility (Strout, 2010).

Though the specific courses and associations between different abuse experiences and psychopathologies are not yet well understood, this review shows a strong consensus that childhood abuse does impact adult mental health. Therefore, it is essential that experiences of childhood abuse are specifically and consistently enquired about during assessments within mental health services, which as yet is not the case (Hepworth and McGowan, 2013; Read, Harper, Tucker and Kennedy, 2018).

Finally, though the focus of this review has been on the impact of childhood abuse on adult psychopathology, it should be acknowledged that links between childhood abuse and aggressive/offending behaviour have been well established (Widom and Massey, 2015; Watts and McNulty, 2013; Widom and Maxfield, 2001), and so from a risk management perspective it is very important that forensic psychiatric services prioritise awareness and mindfulness of the levels of childhood abuse within the forensic population.

Conclusion

Though there was general agreement across the studies regarding the overall negative impact of childhood abuse on adult psychopathology, the specifics of this relationship varied substantially. This could be explained in a variety of ways. The relationship is complex; numerous genetic and environmental factors will influence the likelihood and specific form of any adult psychopathology (Carr et al., 2013). Further, the participants in these studies will vary across numerous factors in terms of culture, other adverse experiences, personality and resilience factors, experiences of

different mental health services and settings, and various other lifestyle confounding factors which could not reasonably be controlled for.

Factors which could be mitigated, however, include some methodological weaknesses within the studies. Key issues raised through critical appraisal of the included studies include small sample sizes, measurement issues with both childhood abuse history and adult psychopathology, limited confound management, and substandard result reporting. Despite this, the findings of this systematic review show emerging evidence regarding specific key aspects of the relationship between childhood abuse and adult psychopathology in the both very specific, and simultaneously very heterogeneous, inpatient forensic population and warrant further research.

References

American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV*) 4th edition. Washington, DC: APA; 1994.

Battle, C. L., Shea, M. T., Johnson, D. M., Yen, S., Zlotnick, C., Zanarini, M. C., Sanislow, C.A., Skodol, A.E., Gunderson, J.G., Grilo, C.M., and McGlashan, T. H. (2004). Childhood maltreatment associated with adult personality disorders: findings from the Collaborative Longitudinal Personality Disorders Study. *Journal of personality Disorders, 18(*2), 193-211.

Beck, A. T., Kovacs, M., and Weissman, A. (1979). Assessment of suicidal intention: The scale for suicide ideation*. Journal of Consulting and Clinical Psychology, 47*, 343–352.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., and Erbaugh, J. (1961). An inventory for measuring depression. *Archives of general psychiatry, 4*(6), 561-571.

Beck, A. T., Weissman, A., Lester, D., and Trexler, L. (1974). The measurement of pessimism: The Hopelessness Scale. *Journal of Consulting and Clinical Psychology, 42*, 861–865.

Beer, M. D., Muthukumaraswamy, A., Khan, A. A., and Musabbir, M. A. (2010). Clinical characteristics of patients with self harming behaviour in a low secure mental health unit. *Journal of Psychiatric Intensive Care, 6*(1), 15-21.

Belsky, J., and De Haan, M. (2011). Annual research review: Parenting and children's brain development: The end of the beginning. *Journal of Child Psychology and Psychiatry, 52*(4), 409-428.

Bendall, S., Jackson, H. J., Hulbert, C. A., and McGorry, P. D. (2008). Childhood trauma and psychotic disorders: a systematic, critical review of the evidence. *Schizophrenia bulletin, 34*(3), 568-579.

Bernstein, D. P., Fink, L., Handelsman, L., Foote, J., Lovejoy, M., Wenzel, K., Sapareto, E., and Ruggiero, J. (1994). Initial reliability and validity of a new retrospective measure of child abuse and neglect. *The American journal of psychiatry, 151*(8), 1132–1136.

Bernstein, D.F. and Fink, L. (1998). *Childhood Trauma Questionnaire: A retrospective Self Report.* San Antonio, Texas: The Psychological Corporation.

Bernstein, E. M. and Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous and Mental Disease, 174*, 727-735.

Bierer, L. M., Yehuda, R., Schmeidler, J., Mitropoulou, V., New, A. S., Silverman, J. M., and Siever, L. J. (2003). Abuse and neglect in childhood: relationship to personality disorder diagnoses. *CNS spectrums, 8*(10), 737-754.

Bohle, A., and De Vogel, V. (2017). Gender Differences in Victimization and the Relation to Personality Disorders in Forensic Psychiatry. *Journal of Aggression, Maltreatment and Trauma, 26*(4), 411-429.

Bottoms, B. L., Rudnicki, A. G., and Epstein, M. A. (2007). A retrospective study of factors affecting the disclosure of childhood sexual and physical abuse. In M. Pipe, M. E. Lamb,Y. Orbach, and A. Cederborg (Eds.), *Child sexual abuse: Disclosure, delay and denial (pp. 175-194).* Mahwah, NJ: Lawrence Erlbaum.

Bowen, K., Jarrett, M., Stahl, D., Forrester, A., and Valmaggia, L. (2018). The relationship between exposure to adverse life events in childhood and adolescent years and subsequent adult psychopathology in 49,163 adult prisoners: A systematic review. *Personality and Individual Differences, 131,* 74-92.

Briere, J. (1992). Methodological issues in the study of sexual abuse effects. *Journal of consulting and clinical psychology, 60*(2), 196.

Briere, J., Kaltman, S., and Green, B. L. (2008). Accumulated childhood trauma and symptom complexity. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies, 21*(2), 223-226.

Buccheri, R. K., and Sharifi, C. (2017). Critical appraisal tools and reporting guidelines for evidence-based practice. *Worldviews on Evidence-Based Nursing, 14(*6), 463-472.

Carr, C. P., Martins, C. M. S., Stingel, A. M., Lemgruber, V. B., and Juruena, M. F. (2013). The role of early life stress in adult psychiatric disorders: a systematic review according to childhood trauma subtypes. *The Journal of nervous and mental disease, 201*(12), 1007-1020.

Caslini, M., Bartoli, F., Crocamo, C., Dakanalis, A., Clerici, M., and Carrà, G. (2016). Disentangling the association between child abuse and eating disorders: a systematic review and meta-analysis. *Psychosomatic medicine, 78*(1), 79-90.

Cicchetti, D. (2002). The impact of social experience on neurobiological systems: Illustration from a constructivist view of child maltreatment. *Cognitive development, 17*(3-4), 1407-1428.

Cima, M., Merckelbach, H., Klein, B., Shellbach-Matties, R., and Kremer, K. (2001). Frontal lobe dysfunctions, dissociation, and trauma self-reports in forensic psychiatric patients. *The Journal of nervous and mental disease, 189*(3), 188-190.

Cloitre, M., Courtois, C. A., Charuvastra, A., Carapezza, R., Stolbach, B. C., and Green, B. L. (2011). Treatment of complex PTSD: Results of the ISTSS expert clinician survey on best practices. *Journal of traumatic stress, 24*(6), 615-627.

Cloitre, M., Stolbach, B. C., Herman, J. L., Kolk, B. V. D., Pynoos, R., Wang, J., and Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of traumatic stress, 22*(5), 399-408.

de Vogel, V., de Vries Robbé, M., van Kalmthout, W., and Place, C. (2012). *Female Additional Manual (FAM). Additional guidelines to the HCR-20 for assessing risk for violence in women.* Utrecht, The Netherlands: Van der Hoeven Stichting.

de Vogel, V., de Vries Robbé, M., van Kalmthout, W., and Place, C. (2014). Female Additional Manual (FAM). *Additional guidelines to the HCR-20V3 for assessing risk for violence in women. English version.* Utrecht, The Netherlands: Van der Hoeven Kliniek.

Diekstra, R. F. W., Duijsens, I. J., EurelingsBontekoe, E. H. M., and Ouwersloot, G. (1993). *The International Personality Disorder Examination (IPDE) versie 1. 1. Interview boek.* Lisse: Swets en Zeitlinger.

Dill, D. L., Chu, J. A., Grob, M. C., and Eisen, S. V. (1991). The reliability of abuse history reports: A comparison of two inquiry formats. *Comprehensive psychiatry, 32*(2), 166-169.

Dudeck, M., Sosic-Vasic, Z., Otte, S., Rasche, K., Leichauer, K., Tippelt, S., Shenar, R., Klingner, S., Vasic, N. and Streb, J. (2016). The association of adverse childhood experiences and appetitive aggression with suicide attempts and violent crimes in male forensic psychiatry inpatients*. Psychiatry research, 240*, 352-357.

Eckert, M., Schel, S., Kennedy, H., and Bulten, B. (2017). Patient characteristics related to length of stay in Dutch forensic psychiatric care*. The Journal of Forensic Psychiatry and Psychology, 28*(6), 863-880.

Ehlers, A., and Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour research and therapy, 38*(4), 319-345.

Evans, C., Connell, J., Barkham, M., Margison, F., McGrath, G., Mellor-Clark, J., Audin, K. (2002). Towards a standardized brief outcome measure: psychometric properties and utility of the CORE-OM. *British Journal of Psychiatry 180,* 51-60.

Everson, M. D., Smith, J. B., Hussey, J. M., English, D., Litrownik, A. J., Dubowitz, H., Thompson, R., Dawes Knight, E. and Runyan, D. K. (2008). Concordance between adolescent reports of childhood abuse and child protective service determinations in an at-risk sample of young adolescents*. Child maltreatment, 13(1*), 14-26.

Eysenck, H. J., and Eysenck, S. B. G. (1991*). Manual of the Eysenck Personality Scales (EPS Adult).* London, Sydney, Auckland: Hodder and Stoughton.

Fisher, H. L., Craig, T. K., Fearon, P., Morgan, K., Dazzan, P., Lappin, J., Hutchinson, G., Doody, G.A., Jones, P.B., McGuffin, P. and Murray, R. M. (2011). Reliability and comparability of psychosis patients' retrospective reports of childhood abuse*. Schizophrenia Bulletin, 37*(3), 546-553.

Garieballa, S., Schauer, M., Neuner, F., Saleptsi, E., Kluttig, T., Elbert, T., Hoffmann, K., Rockstroh, B. (2006). Traumatic events, PTSD, and psychiatric comorbidity in forensic patients – assessed by questionnaires and diagnostic interview. *Clinical Practice and Epidemiology in Mental Health: CP and EMH, 2*(1), 7.

Hare, R. D. (1991). *The Hare Psychopathy Checklist—Revised.* Toronto, Canada: Multi-Health Systems.

Hawton, K., Bergen, H., Kapur, N., Cooper, J., Steeg, S., Ness, J., and Waters, K. (2012). Repetition of self-harm and suicide following self-harm in children and adolescents: Findings from the Multicentre Study of Self-Harm in England. *Journal of Child Psychology and Psychiatry, 53(*12), 1212-1219.

Hein, T. C., and Monk, C. S. (2017). Research Review: Neural response to threat in children, adolescents, and adults after child maltreatment - a quantitative meta-analysis*. Journal of child psychology and psychiatry, and allied disciplines, 58*(3), 222–230.

Hepworth, I., and McGowan, L. (2013). Do mental health professionals enquire about childhood sexual abuse during routine mental health assessment in acute mental health settings? A substantive literature review. *Journal of Psychiatric and Mental Health Nursing, 20*(6), 473-483.

Herman, J. L., and van der Kolk, B. A. (1987). Borderline Personality Disorder, in *Psychological Trauma,* Edited by Van Der Kolk B. Washington, DC: American Psychiatric Press.

Herman, J.L., Perry, J.C., van der Kolk, B.A. (1989). Childhood trauma in borderline personality disorder. *American Journal of Psychiatry 146*, 490–495.

Hillberg, T., Hamilton-Giachritsis, C., and Dixon, L. (2011). Critical review of meta-analyses on the association between child sexual abuse and adult psychopathology: a systematic approach. *Trauma, Violence and Abuse, 12*(1), 38-49.

Isele, D., Teicher, M. H., Ruf-Leuschner, M., Elbert, T., Kolassa, I. T., Schury, K., and Schauer, M. (2014). KERF–ein Instrument zur umfassenden Ermittlung belastender Kindheitserfahrungen. *Zeitschrift für Klinische Psychologie und Psychotherapie,* 43: 121–130.

Karsten, J., de Vogel, V., and Lancel, M. (2015). Characteristics and offences of women with borderline personality disorder in forensic psychiatry: a multicentre study. *Psychology, Crime and Law, 22*(3), 224–237.

Kessler, R. C., McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., Aguilar-Gaxiola, S., Alhamzawi, A.O., Alonso, J., Angermeyer, M. and Benjet, C. (2010). Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *The British Journal of Psychiatry, 197*(5), 378-385.

Kolk, B. A., and Fisler, R. E. (1994). Childhood abuse and neglect and loss of self-regulation. *Bulletin of the Menninger Clinic, 58*(2), 145.

Kühberger, A., Fritz, A., and Scherndl, T. (2014). Publication bias in psychology: A diagnosis based on the correlation between effect size and sample size. *PloS one, 9*(9), e105825.

Lindert, J., von Ehrenstein, O. S., Grashow, R., Gal, G., Braehler, E., and Weisskopf, M. G. (2014). Sexual and physical abuse in childhood is associated with depression and anxiety over the life course: systematic review and meta-analysis. *International journal of public health, 59*(2), 359-372.

Low, G., Jones, D., Macleod, A., Power, M., and Duggan, C. (2000). Childhood trauma, dissociation and self-harming behaviour: A pilot study. *British Journal Of Medical Psychology, 73*, 269-278.

Macinnes, M. (2014) Examining the Sequelae of Childhood Trauma. A systematic review on the influence of childhood trauma on psychopathology. University of Edinburgh, Edinburgh.

Macinnes, M., Macpherson, G., Austin, J., and Schwannauer, M. (2016). Examining the effect of childhood trauma on psychological distress, risk of violence and engagement, in forensic mental health. *Psychiatry Research, 246*, 314-320.

Mars, B., Heron, J., Klonsky, E. D., Moran, P., O'Connor, R. C., Tilling, K., Wilkinson, P., and Gunnell, D. (2019). Predictors of future suicide attempt among adolescents with suicidal thoughts or non-suicidal self-harm: a population-based birth cohort study. *The Lancet Psychiatry, 6*(4), 327-337.

Matheson, S. L., Shepherd, A. M., Pinchbeck, R. M., Laurens, K. R., and Carr, V. J. (2013). Childhood adversity in schizophrenia: a systematic meta-analysis. *Psychological medicine, 43*(2), 225-238.

Merrick, M. T., Ports, K. A., Ford, D. C., Afifi, T. O., Gershoff, E. T., and Grogan-Kaylor, A. (2017). Unpacking the impact of adverse childhood experiences on adult mental health*. Child abuse and neglect, 69,* 10-19.

Messman-Moore, T. L., and Coates, A. A. (2007). The impact of childhood psychological abuse on adult interpersonal conflict: The role of early maladaptive schemas and patterns of interpersonal behavior. *Journal of Emotional Abuse, 7(*2), 75-92.

Mina, E. E. S., and Gallop, R. M. (1998). Childhood sexual and physical abuse and adult self-harm and suicidal behaviour: a literature review. *The Canadian Journal of Psychiatry, 43*(8), 793-800.

Mollica, R. F., Wyshak, G., de Marneffe, D., Khuon, F., and Lavelle, J. (1987). Indochinese versions of the Hopkins Symptom Checklist-25: a screening instrument for the psychiatric care of refugees*. The American journal of psychiatry, 144*(4), 497–500.

Moola S, Munn Z, Tufanaru C, Aromataris E, Sears K, Sfetcu R, Currie M, Qureshi R, Mattis P, Lisy K, Mu P-F. Chapter 7: Systematic reviews of etiology and risk *In: Aromataris E, Munn Z (Editors). Joanna Briggs Institute Reviewer's Manual.* The Joanna Briggs Institute, 2017. Available from https://reviewersmanual.joannabriggs.org/

Nanni, V., Uher, R., and Danese, A. (2012). Childhood maltreatment predicts unfavorable course of illness and treatment outcome in depression: a meta-analysis*. American Journal of Psychiatry, 169*(2), 141-151.

NHS Education for Scotland (NES). (2017). *National Trauma Training Framework.* Scotland, Author.

Ogata, S. N., Silk, K. R., Goodrich, S., Lohr, N. E., Westen, D., and Hill, E. M. (1990). Childhood sexual and physical abuse in adult patients with borderline personality disorder. *American Journal of Psychiatry, 147*(8), 1008-1013.

Panzer, A. (2008). The neuroendocrinological sequelae of stress during brain development: the impact of child abuse and neglect. *African journal of psychiatry, 11*(1), 29-34.

Paquola, C., Bennett, M. R., and Lagopoulos, J. (2016). Understanding heterogeneity in grey matter research of adults with childhood maltreatment—a meta-analysis and review*. Neuroscience and Biobehavioral Reviews, 69*, 299-312.

Paris, J. (2000). Childhood precursors of borderline personality disorder. *Psychiatric Clinics of North America, 23*(1), 77-88.

Pelcovitz, D., van der Kolk, B., Roth, S., Mandel, F., Kaplan, S., and Resick, P. (1997). Development of a criteria set and a structured interview for disorders of extreme stress (SIDES). *Journal of Trauma Stress, 10*, 3–16.

Quigley, J. M., Thompson, J. C., Halfpenny, N. J., and Scott, D. A. (2019). Critical appraisal of nonrandomized studies—A review of recommended and commonly used tools. *Journal of evaluation in clinical practice, 25*(1), 44-52.

Read, J., Fink, P., Rudegeair, T., Felitti, V., and Whitfield, C. (2008). Child maltreatment and psychosis: a return to a genuinely integrated bio-psycho-social model. *Clinical Schizophrenia and Related Psychoses, 2*(3), 235-254.

Read, J., Harper, D., Tucker, I., and Kennedy, A. (2018). Do adult mental health services identify child abuse and neglect? A systematic review. *International journal of mental health nursing, 27*(1), 7-19.

Read, J., Perry, B. D., Moskowitz, A., and Connolly, J. (2001). The contribution of early traumatic events to schizophrenia in some patients: a traumagenic neurodevelopmental model. *Psychiatry: Interpersonal and Biological Processes, 64*(4), 319-345.

Rutherford, H., and Taylor, P. J. (2004). The transfer of women offenders with mental disorder from prison to hospital*. Journal of Forensic Psychiatry and Psychology, 15*(1), 108-123.

Schilling, E. A., Aseltine, R. H., and Gore, S. (2008). The impact of cumulative childhood adversity on young adult mental health: Measures, models, and interpretations. *Social science and medicine, 66*(5), 1140-1151.

Shonkoff, J. P., Garner, A. S., Siegel, B. S., Dobbins, M. I., Earls, M. F., McGuinn, L., Pascoe, J., and Committee on Early Childhood, Adoption, and Dependent Care. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics, 129(*1), e232-e246.

Skodol, A. E., and Bender, D. S. (2003). Why are women diagnosed borderline more than men? *Psychiatric Quarterly, 74*(4), 349-360.

Snaith, R. P., Constantopoulos, A. A., Jardine, M. Y., and McGuf n, P. (1978). A clinical scale for the self-assessment of irritability*. British Journal of Psychiatry, 132*, 164–171.

Spitzer, C., Chevalier, C., Gillner, M., Freyberger, H. J., and Barnow, S. (2006). Complex posttraumatic stress disorder and child maltreatment in forensic inpatients*. The Journal of Forensic Psychiatry and Psychology, 17*(2), 204-216.

Spratt, E. G., Friedenberg, S. L., Swenson, C. C., LaRosa, A., De Bellis, M. D., Macias, M. M., Summer, A.P., Hulsey, T.C., Runyan, D.K. and Brady, K. T. (2012). The effects of early neglect on cognitive, language, and behavioral functioning in childhood. *Psychology (Irvine, Calif.), 3*(2), 175.

Stinson, J., Quinn, M., and Levenson, J. (2016). The impact of trauma on the onset of mental health symptoms, aggression, and criminal behavior in an inpatient psychiatric sample. *Child Abuse and Neglect, 61*, 13-22.

Strout, T. D. (2010). Perspectives on the experience of being physically restrained: An integrative review of the qualitative literature*. International Journal of Mental Health Nursing, 19*(6), 416-427.

Sweeney, A., Filson, B., Kennedy, A., Collinson, L., and Gillard, S. (2018). A paradigm shift: relationships in trauma-informed mental health services. BJPsych advances, 24(5), 319-333.

Teicher, M. H., and Parigger, A. (2011). Modified Adverse Childhood Experience Scale, version 0.9; inspired by the ACE Scale. In: Neuner F, Elbert T (eds). *A Short-Term Intervention for Traumatic Stress, vol. 2.* Huber Publishers and Hogrefe: Cambridge, MA, USA/Göttingen, Germany.

Teicher, M. H., Dumont, N. L., Ito, Y., Vaituzis, C., Giedd, J. N., and Andersen, S. L. (2004). Childhood neglect is associated with reduced corpus callosum area. *Biological psychiatry, 56*(2), 80-85.

Timmerman, I. G. H., and Emmelkamp, P. M. G. (2001). The Relationship Between Traumatic Experiences, Dissociation, and Borderline Personality Pathology among Male Forensic Patients and Prisoners. *Journal of Personality Disorders, 15*(2), 136–149.

van der Kolk, B. A. (2005). Developmental trauma disorder: Toward a rational diagnosis for children with complex trauma histories. *Psychiatric Annals, 35*, 401–408

Vanderlinden, J., van Dyck, R. Vandereyken, W., Vertommen, H., and Verkes (1993). The Dissociation Questionnaire (DISQ): Development and characteristics of a new self report questionnaire. *Clinical Psychology and Psychotherapy, 1,* 21–28.

Watts, S. J., and McNulty, T. L. (2013). Childhood abuse and criminal behavior: Testing a general strain theory model. *Journal of interpersonal violence, 28*(15), 3023-3040.

Webster, C.D., Douglas, K.S., Eaves, D., and Hart, S.D. (1997). *HCR-20: assessing the risk of violence, version 2.* Vancouver: Simon Fraser University and Forensic Psychiatric Services Commission of British Columbia.

Wechsler, D., Coalson, D. L., and Raiford, S. E. (2008). *WAIS-IV. Wechsler Adult Intelligence Scale: Fourth Edition. Technical and interpretative manual.* San Antonio, TX: NCS Pearson.

Widom, C. S., and Massey, C. (2015). A prospective examination of whether childhood sexual abuse predicts subsequent sexual offending. *JAMA pediatrics, 169*(1), e143357-e143357.

Widom, C. S., and Maxfield, M. G. (2001). An Update on the" Cycle of Violence." *Research in Brief.*

Widom, C. S., Czaja, S. J., and Dutton, M. A. (2008). Childhood victimization and lifetime revictimization. *Child abuse and neglect, 32*(8), 785-796.

Woodhouse, S., Ayers, S., and Field, A. P. (2015). The relationship between adult attachment style and post-traumatic stress symptoms: A meta-analysis. *Journal of anxiety disorders, 35*, 103-117.

Wright, M. O. D., Crawford, E., and Del Castillo, D. (2009). Childhood emotional maltreatment and later psychological distress among college students: The mediating role of maladaptive schemas. *Child abuse and neglect, 33*(1), 59-68.

Young, J. E., Klosko, J. S., and Weishaar, M. E. (2006*). Schema therapy: A practitioner's guide*. Guilford Press.

Appendix 1. Instructions for Authors from Child Maltreatment (CM)

Manuscript Submission Guidelines:

Child Maltreatment (CM) is the official journal of the American Professional Society on the Abuse of Children (APSAC) and primarily publishes work on samples from North America. CM welcomes manuscripts addressing timely and important topics in practice, policy, and theory, including empirical research articles, systematic review articles, and program evaluations that illustrate theoretical issues or new phenomena.

Submissions should be prepared according to the guidelines in the Publication Manual of the American Psychological Association (7th edition).

Regular articles should be no more than 30 double-spaced pages, inclusive of tables, figures, and references. Brief reports will also be accepted, limited to no more than 12 double-spaced pages including tables, figures, and references. Reviews of the literature should be no more than 50 double-spaced pages. Include an abstract of approximately 150 words. The authors' name and affiliation must be listed on a separate Title Page for anonymous review. Submission to Child Maltreatment implies that the manuscript has not been published elsewhere, and is not under consideration by any other journal; a statement to this effect should be included with the all submissions.

Appendix 2. Excluded Studies

	Excluded Studies	Reason for Exclusion
1	Adshead, G. (1994). Damage: Trauma and violence in a sample of women referred to a forensic service. *Behavioral Sciences and the Law*, *12*(3), 235-249.	Descriptive study – no analysis
2	Byrne, C. P., Velamoor, V. R., Cernovsky, Z. Z., Cortese, L., and Losztyn, S. (1990). A comparison of borderline and schizophrenic patients for childhood life events and parent-child relationships. *The Canadian Journal of Psychiatry*, *35*(7), 590-595.	Non-forensic sample
3	Campbell, L. M. (2000). Dissociative tendencies and violent behavior in a male forensic psychiatric population.	Violence as outcome of interest Dissertation; not peer reviewed
4	Cook, C. L. (2017). Early Childhood Adversity and Chronic Illness: An Examination of a High Risk-Forensic Inpatient Population.	Dissertation; not peer reviewed Chronic physical illness is outcome of interest
5	Dolan, M., and Whitworth, H. (2013). Childhood sexual abuse, adult psychiatric morbidity, and criminal outcomes in women assessed by medium secure forensic service. *Journal of child sexual abuse*, *22*(2), 191-208.	Participants were assessed by forensic service but not necessarily inpatients – included court assessments etc
6	Dudeck, M., Barnow, S., Spitzer, C., Stopsack, M., Gillner, M., and Freyberger, H. J. (2006). The relevance of personality and sexual traumata for sexual offenders in forensic psychiatry. *Psychotherapie, Psychosomatik, Medizinische Psychologie*, *56*(3-4), 147-153.	Sexual offending as opposed to non-sexual offending as outcome of interest
7	Dudeck, M., Spitzer, C., Stopsack, M., Freyberger, H. J., and Barnow, S. (2007). Forensic inpatient male sexual offenders: The impact of personality disorder and childhood sexual abuse. *The Journal of Forensic Psychiatry and Psychology*, *18*(4), 494-506.	Sexual offending risk as outcome of interest
8	Fekih-Romdhane, F., Larbi, L., Ridha, R., and Cheour, M. (2020). *Profil des agresseurs sexuels reconnus non responsables pour cause de troubles mentaux en Tunisie. Sexologies.* doi:10.1016/j.sexol.2020.02.002	Not available in English Descriptive study; no inferential analysis
9	Frodi, A., Dernevik, M., Sepa, A., Philipson, J., and Bragesjö, M. (2001). Current attachment representations of incarcerated offenders varying in degree of psychopathy. *Attachment and human development*, *3*(3), 269-283.	Prison population
10	Gorsuch, N. (1998). Unmet need among disturbed female offenders. *The Journal of Forensic Psychiatry*, *9*(3), 556-570.	Mixed prison and forensic psychiatry population

11	Grady, M. D., Looman, J., and Abracen, J. (2019). Childhood abuse, attachment, and psychopathy among individuals who commit sexual offenses. *Sexual Addiction and Compulsivity*, *26*(1-2), 77-102.	Prison population
12	Hemphill (2010) The impact of traumatic experiences on subsequent mental health functioning among male sex offenders and male victims of physical and sexual abuse.	Dissertation
13	McElroy, S. L., Soutullo, C. A., Taylor Jr, P., Nelson, E. B., Beckman, D. A., Brusman, L. A., Ombaba, J. M., Strakowski, S. M., and Keck Jr, P. E. (1999). Psychiatric features of 36 men convicted of sexual offenses. *The Journal of clinical psychiatry*.	Prison population
14	Razali, S., Salleh, R. I. M., Yahya, B., and Ahmad, S. H. (2015). Maternal filicide among women admitted to forensic psychiatric institutions in Malaysia: Case series. *East Asian archives of psychiatry*, *25*(2), 79.	No inferential analysis
15	Ribeiro, R. B., Tully, J., and Fotiadou, M. (2015). Clinical characteristics and outcomes on discharge of women admitted to a Medium Secure Unit over a 4-year period. *International journal of law and psychiatry*, *39*, 83-89.	No analysis of the relationship between childhood abuse and later mental health difficulty
16	Semiz, U. B., Basoglu, C., Oner, O., Munir, K. M., Ates, A., Algul, A., Ebrinc, S. and Cetin, M. (2008). Effects of diagnostic comorbidity and dimensional symptoms of attention-deficit–hyperactivity disorder in men with antisocial personality disorder. *Australian and New Zealand Journal of Psychiatry*, *42*(5), 405-413.	Not forensic inpatient sample; participants are general population being assessed within a military health centre
17	Spidel, A., Greaves, C., Yuille, J., and Lecomte, T. (2015). A comparison of treatment adherence in individuals with a first episode of psychosis and inpatients with psychosis. *International journal of law and psychiatry*, *39*, 90-98.	Treatment adherence the variable examined.
18	Spitzer, C., Dudeck, M., Liss, H., Orlob, S., Gillner, M., and Freyberger, H. J. (2001). Post-traumatic stress disorder in forensic inpatients. The Journal of Forensic Psychiatry, 12(1), 63–77. doi:10.1080/09585180121757	No analysis of the relationship between childhood abuse and later mental health difficulty
19	Stang, J., Sandli, C. S., Moger, T., and Bjørkly, S. (2009). Patients admitted to a maximum security forensic psychiatry unit in Norway: A case file analysis of demographic, psychosocial, clinical and criminal characteristics. *International Journal of Forensic Mental Health*, *8*(4), 235-244.	No analysis of the relationship between childhood abuse and later mental health difficulty
20	Stein (2000) Dissociation and crime: Abuse, mental illness, and violence in the lives of incarcerated men	Dissertation
21	Stevenson (2010) Family environment, child abuse, and neurological injury as predictors of psychopathy in insanity acquittees	Dissertation

22	Tate (2012) Recidivism and participation in court diversion programs by mentally ill offenders	Dissertation
23	Vallejo, M., and Bertone, M. S. (2016). Traumatic childhood in a private male population of liberty events: prevalence study. *Revista de la Facultad de Ciencias Medicas (Cordoba, Argentina)*, *73*(2), 75-82.	No inferential analysis
24	Vallejos, M., and Cesoni, O. M. (2019). Maltrato infantil, diferencias de género y sus implicaciones clínicas y criminológicas en personas privadas de su libertad. Revista Colombiana de Psiquiatría. doi:10.1016/j.rcp.2019.01.001	No full text in English available
25	van den Brink, C., Harte, J. M., and Denzel, A. D. (2018). Men and women with borderline personality disorder resident in Dutch special psychiatric units in prisons: A descriptive and comparative study. *Criminal behaviour and mental health*, *28*(4), 324-334.	Prison population No inferential analysis
26	van Dongen, J., Buck, N., and Van Marle, H. (2015). Unravelling offending in schizophrenia: Factors characterising subgroups of offenders. *Criminal behaviour and mental health*, *25*(2), 88-98.	No analysis of the relationship between childhood abuse and later mental health difficulty
27	Wagner (2017) Psychological symptoms experienced by victims of child sexual abuse among adult sexual offenders	Dissertation

CHAPTER 2 – EMPIRICAL PROJECT

This chapter consists of a journal article reporting the findings of an empirical project exploring incidents of aggression or violence experienced by inpatients within a high security forensic hospital. Of particular interest were the influence of childhood experiences of abuse and mental health diagnoses on later victimization within this setting. The article was formatted in line with the instructions for authors provided by the Journal of Interpersonal Violence, which can be found in Appendix A.

Patient-directed aggression or violence in a forensic mental health setting; individual variables associated with being victimized.

Alice Fawdrey[1, A*]; Dr Joseph Judge[2]; Dr Suzanne O'Rourke[1, 2]

[1] *School of Health in Social Science, University of Edinburgh, Doorway 6, Old Medical Building, Teviot Place, Edinburgh, Scotland, United Kingdom, EH8 9AG.*

[2] *Clinical Psychology Department, The State Hospital, Carstairs, Lanarkshire, ML11 8RP.*

[A*] *Corresponding Author at*

Abstract

Although much research is published regarding the perpetration of aggression by inpatients in mental health settings, to date far less attention has been paid to the victimization of inpatients. Previous research within the broader field of victimization has suggested that a history of childhood abuse and certain mental health difficulties including diagnoses of schizophreniform disorders, PTSD, and intellectual impairment are associated with future victimization. The current study aimed to explore whether these risk factors are also predictive of victimization within a high secure forensic inpatient setting. A 5-year cohort of high secure inpatients, resulting in a sample of 278 men, and all incidents in which patients were victimized by other inpatients within this period were examined. Abuse histories, demographic, and diagnostic characteristics of victimized inpatients were compared with those who were not victimized. Within the victimised subsample, diagnoses and childhood abuse histories potentially associated with frequency of victimization were also explored. Results indicated that at the bivariate level, total time since admission by the end of the study period was associated with being victimized, as was a diagnosis of a psychotic disorder, schizoaffective disorder, a personality disorder, and intellectual impairment. At the multivariate level, only length of stay within the study period and having a diagnosis of intellectual impairment were significant contributors to a model predicting frequency of victimization. PTSD rates within the sample were lower than predicted, precluding analysis and highlighting under recognition of trauma in this setting. The findings are explored with regards to implications for safeguarding of especially vulnerable inpatients, and important directions for further research are outlined.

Key words: Childhood abuse, psychiatric patient, victimization, risk factors, mental health difficulty, forensic mental health

Introduction

Aggression and victimization within mental health settings

The literature around aggression or violence within mental health settings is dominated by three main research strands; predicting which patients are more likely to be assaultive (Dack et al., 2013; Flannery, Wyshak, Tecce, and Flannery, 2014; Iozzino et al., 2015), whether certain staff are at greater risk of victimization (Little, 1999; Rodriguez-Acosta et al., 2010; Winstanley and Whittington, 2004), and which characteristics of situations or ward environments are associated with a higher or lower likelihood of aggressive incidents (Cornaggia, Beghi, Pavone, and Barale, 2011; Gaynes et al., 2017; Papadopoulos et al., 2012). The issue of patients being victimized within mental health settings is conspicuously neglected in comparison. Indeed, the opinions or experiences of patients are rarely explored, and when included the focus usually remains on them as perpetrators of aggression (Duxbury and Whittington, 2005; Gudde, Olsø, Whittington, and Vatne, 2015; Lamanna et al., 2016). When rates of inpatient victimization are reported, the prevalence and negative impacts are deeply concerning (Ellison and Berzins, 2019). Mind's (2004) UK national survey of inpatients reported approximately 50% had experienced threats from fellow patients, and 20% had experienced physical assault. Within the UK, one large scale survey found that 37% of inpatients reported being threatened, made to feel unsafe, or physically attacked while in hospital (Chaplin, McGeorge, and Lelliott, 2006), and a second reported that 15% of patients on acute psychiatric wards and 25% of those in psychiatric intensive care had experienced physical assault by fellow patients (Loubser, Chaplin, and Quirk, 2009). Similar prevalences have been reported internationally (USA: Grossi et al., 2019; Germany: Stecher et al., 2018; Portugal: dos Santos Mesquita and da Costa Maia, 2016), with the consensus being that inpatient victimisation is a common and concerning issue within inpatient settings.

Within psychiatric populations, experiencing victimization has been linked with various negative outcomes, including worsening mental health (Marley and Buila, 2001) and the exacerbation of existing symptoms (Goodman, Dutton, and Harris, 1997). It has been shown to be associated with increased aggressive behaviour (Sadeh, Binder, and McNiel, 2014), and in turn increases the risk of further revictimization (Lam and Rosenheck, 1998).

Vulnerability to victimization

The majority of victimization literature is set outside the inpatient mental health setting, most often focussing on the general population, college samples, those accessing services following traumatic experiences, and bullying in adolescent populations. As well as containing a wide variety of subpopulations, each likely to have unique contexts, the cohesion of the victimization literature is also complicated by the lack of a consistent definition of victimization. Some research includes only physical or sexual assault, whereas others use a wider definition inclusive of verbal aggression and bullying within adolescent, workplace, or prison settings.

Some research has identified dynamic risk factors for victimization; homelessness (Heerde, Scholes-Balog, and Hemphill, 2015), unemployment (Wohlfarth, Winkel, Ybema, and vander Brink, 2001), substance misuse (Larney et al., 2009), having unmet basic needs such as food, finances, childcare, and healthcare (Walsh et al., 2003), medication non-compliance in SMI populations (El Missiry, Abd El Meguid, Soltan, and El Missiry, 2014). These relationships have been examined within community samples; this limits their applicability to inpatients, for example in the case of homelessness. For other factors, it is unclear how relevant they may be to an inpatient environment without deeper exploration as to the process by which these factors may increase risk and whether these translate into an inpatient setting.

Certain groups have been shown to have an increased risk of victimization in community populations; members of the LGBTQ community (Boeheneck and Brown, 2001; Equality Network, 2017; Ventimiglia, 2011), and those with physical disabilities (Hughes et al., 2012; Hahn et al., 2014; Mitra, Mouradian, and Diamond, 2011). People with intellectual disabilities have also consistently been found to suffer a higher rate of victimization than those without (for a systematic review see Fisher, Baird, Currey, and Hodapp, 2016). There are many theories as to how having an intellectual impairment may place an individual at higher risk of victimization, considering different aspects of individual differences or environmental issues. Externalising behaviour difficulties have been suggested to increase risk of victimization as a form of retaliation (Fisher et al., 2012). It has also been suggested that those with intellectual impairments may be less aware of social risks and may struggle to respond appropriately in risky situations (Fisher, Moskowitz, and Hodapp, 2013; Wilson, Seaman, and Nettelbeck, 1996), increasing risk both in institutional or group home settings and for those who live independently. Lower sexual knowledge has also been suggested to construe a risk for those with intellectual impairment, where an individual's lack of awareness can be taken advantage of (McCabe, Cummins, and Reid, 1994).

Another consistently found risk factor for adult victimization is previous experiences of trauma, including having witnessed a violent crime in childhood (Spriggs, Halpern, Martin, 2009), and having experienced childhood abuse. Multiple and varied conceptualisations of childhood abuse have been used within related research, however a widely accepted and inclusive definition is provided by the World Health Organisation; "Child maltreatment is the abuse and neglect that occurs to children under 18 years of age. It includes all types of physical and/or emotional ill-treatment, sexual abuse, neglect, negligence and commercial or other exploitation, which results in actual or potential harm to the child's health, survival,

development or dignity in the context of a relationship of responsibility, trust or power." (World Health Organization, 2016).

The relationship between childhood maltreatment and adult victimization has been repeatedly supported across sexual, emotional, and physical assaults (Coid et al., 2001; Widom, Czaja, and Dutton, 2008; Finkelhor, Ormrod, and Turner, 2007). Child abuse has been shown to increase the risk of later victimization across a variety of setting and contexts, including adolescent peer victimization (Calvete et al., 2018), domestic abuse (Crawford and Wright, 2007), workplace violence (Sabri et al., 2015) including mental health staff (Anderson, 2002), and violent victimization of prisoners (Hosser, Raddatz and Windzio, 2007). Theories as to why experiencing trauma in early life appears to increase vulnerability to future victimization can be divided into three main themes; that some individuals are inherently more vulnerable and this risk follows them from an early age, that interpersonal patterns including maladaptive coping strategies learned from abuse are internalised and replicated, or that reactions to trauma including PTSD or other mental health difficulties go on to increase a person's risk of victimization. As outlined above, an individual may at a life-long higher risk of vulnerability to victimization due to intellectual or physical disability. Theories regarding the repetition of patterns of abuse have been proposed in relation to sexual abuse and domestic violence; that victims of childhood abuse may lack healthy coping skills which can reduce their ability to avoid or escape risky situations (Wheeler and Berliner, 1988), and instead rely on maladaptive coping mechanisms learned in the context of abuse, for example hypersexuality, compliance with authority figures, alcohol or drug misuse (Filipas and Ullman, 2006; Messman-Moore and Long, 2000). Social and emotional skills deficits related to parental maltreatment have also been suggested to increase risk of peer victimization in adolescents by limiting their ability to form pro-social relationships (Juvonen and Graham, 2014). These theories can be considered to be consistent with the lifestyle/routine activities

theoretical perspective of victimization (Miethe and Meier, 1994), which suggests that risk of victimization is related to certain lifestyles and activities which place a person at increased proximity to potential perpetrators.

Having a severe mental illness has in turn been consistently linked to an increased vulnerability to victimization (for systematic reviews see Maniglio, 2009; Latalova, Kamaradova, and Prasko, 2014). This has been demonstrated both generally and with reference to specific diagnostic groups such as those with Schizophrenia (Hodgins, Lincoln, and Mak, 2009), and PTSD (Cougle, Resnick, and Kilpatrick, 2009). Broadly speaking, those with mental health difficulties are thought to be at increased risk if they are identified as unwell in public and targeted or treated differently as a result of prejudice or fear, or due to impaired judgement and interpersonal skills making them more socially vulnerable (Hiday et al., 2002). Schizophrenia and other psychotic disorders have been theorised to increase risk through the impact of psychotic symptoms, including unusual behaviour, which are suggested to increase risk through the potential for tense interactions, which could escalate to violence or aggression (Hiday, 1995). Some have proposed that the increased risk of victimization seen in those with severe mental illness (SMI) is tied to the increased incidence of substance misuse within this group, and further influenced by cognitive deficits and social isolation leading to individuals placing trust in people who then exploit or abuse them (Sells, Rowe, Fisk, and Davidson, 2003). Social cognition impairment has been found within those with schizophrenia specifically (Savla et al., 2013), which is likely to contribute to social vulnerability and potential victimization. There is also emerging evidence indicating specific symptoms which are associated with an increased risk of victimization, for example mania has been suggested to increase risk through making individuals more salient to assaultive others (Fortugno et al., 2013), whereas paranoid symptoms have been suggested to increase risk of victimization through an increase in conflictual social interactions which may result in

an individual being victimized (Hiday et al., 2002). The attention and affective symptoms of trauma reactions including PTSD have been suggested to impair a person's ability to distinguish "real" danger cues from those highlighted as a function of hyper vigilance, and therefore affect their ability to respond appropriately to avoid dangerous situations (Cougle, Resnick and Kilpatrick, 2009).

Given this extensive list of potential risk factors for victimization, a given individual, particularly those with mental health difficulties, may have multiple interacting vulnerabilities. There are also potential causal links between various risk factors, for example between childhood abuse and psychopathology in both the general and prison population (Bowen et al., 2018; Carr et al., 2013), or indeed between experiences of adult victimization and worsening psychopathology (Grossi et al., 2019; Walsh et al., 2003). Some research attempting to further explore the interaction between risk factors has therefore examined multiple risk factors. A study focussing on community-dwelling patients with psychosis found that prior victimization and co-morbid personality disorder diagnoses independently contributed to the prediction of victimization (Dean et al., 2007).This examination of co-morbidity is valuable, especially given that those with SMI are unlikely to have only a single diagnosis or area of difficulty (Braga, Reynolds, and Siris, 2013; Hartz et al., 2014) and further that within forensic inpatient populations, personality disorder diagnoses have been found to be prevalent (De Ruiter, and Trestman, 2007; Nicholls et al., 2009). When considering the exisiting literature base from the position of attempting to generalise findings to forensic populations, a significant issue is evident regarding the samples generally used. Significant proportions of existing research has been conducted in the context of sexual revictimization of girls and women with a history of childhood sexual abuse (Fortier et al., 2009; Risser et al., 2006; Iverson et al., 2011). Exploration of this has however been

neglected in male samples, limiting the generalisability of this finding to male or mixed samples.

Other research within this area has been weakened by failures to suggest theoretical mechanisms behind proposed and tested relationships. Scrafford, Gein, and Miller-Graff (2018) tested a mediation model in a community survey study, reporting support for the impact of childhood abuse on adult mental health difficulty being an indirect one through an increased risk of victimization as an adult. Though presenting statistically significant results, the lack of discussion regarding process or mechanism hinders consideration of how this proposed relationship could map onto other populations and settings.

Assessing for victimization risk

When considering forensic inpatient populations, the aforementioned proposed risk factors occur in high frequencies, as does the victimization of inpatients. It is therefore surprising that there appears to be only one tool which has been developed for mental health settings which specifically includes risk of victimization. The Short-Term Assessment of Risk and Treatability (START; Webster et al., 2009) examines dynamic risk factors, including symptom severity, coping with stress, challenging behaviour, interpersonal difficulties, and adherence to ward rules. Its utility in identifying those at higher risk of victimization has not been consistently supported (Gray et al., 2011; O'Shea, Picchioni, and Dickens, 2016). Griswold et al. (2018) explored the predictive validity of the START for inpatient victimization, including clinician generated summary vulnerability scores and a statistically computed optimized scale. Both were found to be predictive, though the significant predictors on a scale level were inconsistent. This study explored victimization only as a binary variable, comparing a victimized group to the non-victimized group, and examined only a

short exposure period; a mean of 60.5 days. Combined with a relatively small sample of 128 patients, these methodological weaknesses limit the reliability of this study's findings.

Grossi et al. (2019) recently explored whether the most widely used risk assessment for aggressive behaviour (Singh et al., 2014), the Historical Clinical Risk Management Violence Risk Assessment Scheme Version 3 (HCR-20 V^3) (Douglas, Hart, Webster, and Belfrage, 2013), could be used to predict victimization in a forensic inpatient setting. They concluded that the Clinical Factor composite score, which represents a person's clinical presentation in the last 6 months, was associated with an increased risk of victimization. The clinical factor assesses insight, violent ideation or intent, symptoms of major mental disorder, mental, emotional and behavioural instability, and response to treatment and supervision. It could therefore be considered to map onto the findings elsewhere that particular symptoms or associated difficulties of mental health problems function as the risk factors for increased victimization within the SMI population (Goodman, Rosenberg, Mueser, and Drake, 1997; Sells, Rowe, Fisk, and Davidson, 2003).

They did not find a significant association between the historical or risk total scale scores and victimization, nor were the victimized and non-victimized groups significantly different in their scores on the item which captures traumatic experiences (H8). Given the links between childhood abuse and victimization outlined previously this is surprising, however it is possible that child abuse as a risk factor was obscured by other forms of trauma captured under the same item, for example accidental physical injuries, severe illness, or separation from a parent, which perhaps are not associated with inpatient victimization.

Rationale and aims of the current study

Existing research examining risk factors for victimization has been conducted in specific populations, and sometimes been limited by small sample sizes, samples consisting of only

women, short follow up periods, or examining single or limited variables. The literature base regarding victimization and predicting the same within forensic psychiatric settings is in its infancy, with little being known regarding the frequency, nature, and risk factors associated with being vicitmized within this setting. Additional complication is conveyed by the lack of discrimination provided by established risk factors in a population consisting entirely of those who are currently unemployed, inpatients, have a history of aggression, and have one or several severe mental illnesses. Further, to the best of the authors' knowledge none have attempted to examine whether the established links between childhood abuse, particular mental health diagnoses, and later victimization hold within this population and setting.

Therefore this study aimed to add to the limited knowledge base around the incidence of peer-directed aggression or violence (AoV) within secure psychiatric care, and to examine whether a history of childhood physical or sexual abuse and mental health diagnoses were significant predictors of victimization experienced as an inpatient in forensic services. With reference to the existing research findings regarding risk factors for victimization, the following hypotheses were proposed; 1) having a history of childhood physical or sexual abuse predicts victimization as an inpatient; 2) having a history of physical or sexual childhood abuse is associated with an increased frequency of inpatient victimisation; 3) certain mental health diagnoses are associated with being victimized, and frequency of inpatient victimization, namely psychotic disorders, schizoaffective disorder, bipolar affective disorder, intellectual impairment, personality disorders, depression, and PTSD.

Methods

Design and setting

This study was a retrospective, observational cohort study, cross-sectional in design, and examined a five-year period from 1st January 2014 to 31st December 2018 in a high secure

forensic hospital located in central Scotland, serving Scotland and Northern Ireland. Patients within this hospital are detained under the Mental Health Care and Treatment Scotland Act 2003, or the Criminal Procedure Scotland Act 1995, as they are considered to have a mental disorder and pose a significant risk of harm to others. Follow up data, specifically regarding current diagnoses and risk assessment reports were extracted to February 2020.

Ethical Approvals

Ethical approval was obtained from the Wales Research Ethics Committee and NHS State Hospital's Board for Scotland Research Ethics Committee. Letters confirming the approvals can be found in Appendix B. Due to the exclusive use of archival data for the study, consent was not sought from individual participants, as approved by the above review boards.

Procedure

Data for the study were drawn from archival case file documentation stored within the electronic clinical systems at the host hospital. Demographic, clinical, and historical information for each participant was extracted from two sources; biannual multidisciplinary care planning meeting reports (Care Partnership Approach meeting reports), and regularly updated structured professional judgement risk assessment reports. The most recent versions of these two documents were accessed within each patient's electronic care record by the primary researcher. The key variables were extracted and coded, as described in more detail below, and entered into a central pseudo-anonymised database.

Outcome variables were derived from the database of incident reports generated by the risk management procedures within the hospital. All actual or near-miss incidents of AoV are recorded using an electronic incident reporting form, with the involved parties, type of incident, and a short prose description of the events entered. Incidents must be reported using this system within the staff shift in which they occurred; a maximum of 13 hours after they

occurred. All staff are formally trained in the completion of these incident reports. The Risk Department store and review the reports for consistency and accuracy of coding. All incidents coded as "peer to peer" were extracted for the purposes of this study. Each incident was then reviewed by the primary researcher, and key data extracted and added to the aforementioned central pseudo-anonymised database.

Participants

All patients who were admitted prior to the study or within the study period, 01/01/2014 to 31/12/2018, were taken as a cohort sample. One patient was excluded from the study, due to given characteristics which precluded anonymity. This resulted in a total sample of 278 patients, all male.

Measures

History of Childhood Abuse. In order to maximise robustness it was decided that only physical and sexual abuse could be reliably rated from archival records, in line with similar research (Low and Jones, 2000). An individual's history of traumatic experiences including childhood abuse is assessed as part of the HCR-20 V^3 (Douglas, Hart, Webster, and Belfrage, 2013), under the item 'H8: History of Problems with Traumatic Experiences', under which all relevant evidence is compiled. In the present study, physical abuse was defined in line with the HCR-20 V^3 manual; any deliberate infliction of harm to a person under the age of 17, including all types of physical violence, including hitting, biting, kicking, scratching, or the use of an object to strike or otherwise inflict harm. The definition of sexual abuse was also chosen to be consistent with HCR-20 V^3; causing an individual under the age of 17 to engage in or with any sexual activity that they are unable to comprehend, are developmentally unprepared for, or for which consent has not been given. This covers a wide spectrum of activities, from rape to non-contact forms of sexual abuse.

The primary researcher screened each individuals' HCR-20 V^3 report, and rated the presence or absence of childhood physical or sexual abuse from the evidence presented in 'H8: History of Problems with Traumatic Experiences' against a set of criteria. In order to be rated as present, consistent reports from the individual of abuse in keeping with the definition above, or reliable reports from secondary sources such as police, social work, or family members were required. Reports which described cyclical patterns of abuse disclosure and retraction were rated in line with the original assessing clinician's professional opinion. Corporal punishment which fell within the societal norms of the time was not considered to be abusive. Consensual sexual contact between two underage individuals, with no evidence or suspicion of coercion was not considered to be sexual abuse.

Diagnoses. Formal diagnoses were used to operationalise mental health difficulties due to the archival nature of the design. It is acknowledged that there are weaknesses with this methodology. It is possible that there will be patients with sub-clinical levels of various disorders which have therefore not been formally diagnosed. Binary diagnostic data also cannot describe the severity of the impact of a given difficulty, reducing the richness of information which could be assessed with symptom-based measures of mental health difficulty. Despite these issues, conducting the present study on a cohort level using pre-existing data necessitated this decision. Further, using diagnoses will lend increased specificity to the measurement of mental health difficulty.

Diagnoses are listed within each patient's CPA document and therefore updated biannually, with patients within this sample having between 1 and 6 co-morbid diagnoses. A wide range and variety of diagnoses were evident across the sample, spanning numerous diagnostic traditions and editions of manuals. Diagnoses were therefore mapped onto current classification groups within the ICD-10; the full range of diagnoses and their groupings can be found in Appendix C.

Victimization as an inpatient. In line with both the HCR-20 V3 manual (Douglas, Hart, Webster, and Belfrage, 2013), the incident reporting processes within the host hospital, and previous similar research (Grossi et al., 2019) victimization was operationally defined as being subject to interpersonal violence, including verbal threats and attempted assaults, which would reasonably be expected to cause fear, intimidation, physical, or emotional harm.

Each incident coded within the incident reporting database as "peer to peer" was examined for inclusion against the above definition, and the relevant features coded for analysis. Each incident was categorised in line with the incident reporting system as verbal, attempted assault, assault, or sexual assault. When more than one form of victimization occurred within the same incident, the most serious form was coded. The aggressor/s and victim/s for each event were coded against anonymous identifiers. In incidents with more than one aggressor or victim, including incidents with clearly bidirectional aggression (n=36), the incident was duplicated to represent each configuration. In the event that a victim or aggressor was not named within the report, the Security Department of the hospital was contacted to cross reference records. 9 incidents could not be identified in this manner, and so were excluded from the study. Incidents were also excluded if it was not possible to identify an intended victim (n=7), for example insults shouted at a crowded room of people.

Data Analysis

Variables were checked for normality, and managed according to the intended analysis. For the planned t-test comparisons of group means, log transformations were utilised when necessary to achieve normal distributions, noted against the respective analyses below. Chi-Squared Tests for Independence were used for explorations of associations between categorical variables, with Fisher's Exact Probability Tests reported where excess cells contained expected frequencies of below 10, as recommended by Pallant (2020). Logistic

regression was used to predict victimized or non-victimized status, and hierarchical multiple regressions were performed to predict frequency of victimization within the victimized subsample. All analyses were conducted using SPSS 25 for Windows.

Power calculation

For logistic regression analysis, Bujang, Sa'at, and Bakar (2018) suggested a rule of thumb for calculating necessary sample sizes in observational studies; n=100+50(i), where "i" is the number of independent variables included. Using this, the required sample size for the planned logistic regression in this study is 200. Calculations using G*Power (Faul, Erdfelder, Lang, and Buchner, 2007) suggested that for a multiple regression analysis, with an alpha level of .05, 10 predictor variables, medium effect size, and a statistical power level of 0.80 would require a minimum of 118 participants in the victimized subsample.

Results

Demographic and Clinical Characteristics

The mean age of participants on admission to the hospital was 35.01 years (range = 18-73, SD=10.62). Of those who were admitted prior to 01.01.2014, median days spent in the hospital on entry to the study window was 1358 days (range =20-16,921, inter-quartile range = 522.5 to 3806.5). Of those in the sample who had been discharged at the time of data extraction, the mean age on discharge was 39.37 years (range = 20-72, SD=12.1). The median length of stay at the hospital from admission to discharge was 817 days (range = 18 - 17,612, standard deviation = 2490.46, inter-quartile range = 179-2073). Additional demographic information is provided in Table 1.

Table 1. Demographic characteristics of whole sample

		Number (%)
Admitted from	Prison or Court	193 (69.4%)
	Medium secure facility	33 (11.9%)
	Low secure facility	20 (7.2%)

	General psychiatric ward	22 (7.9%)
	Community	1 (0.4%)
	Police custody	5 (1.8%)
	IDD service	3 (1.1%)
	Brain injury service	1 (0.4%)
Ethnic Group	White/White British	260 (93.5%)
	Asian/Asian British	8 (2.9%)
	Mixed Race	4 (1.4%)
	Black/Black British	2 (0.7%)
	Other ethnic group	3 (1.1%)
Index Offence	Murder/Manslaughter	90 (32.4%)
	Attempted Murder/Assault to severe injury	63 (22.7%)
	Assault	44 (15.8%)
	Aggression (not charged)	26 (9.4%)
	Sexual offences	20 (7.2%)
	Sexual offences with violent assault	14 (5%)
	Arson	5 (1.8%)
	Absconsion from secure care	3 (1.1%)
	Public order offence/Breach of the peace	3 (1.1%)
	Possession of a weapon	3 (1.1%)
	Theft/Housebreaking/Robbery	2 (0.7%)
	Other	5 (1.8%)
Diagnoses	Psychotic Disorders	207 (74.5%)
	Substance Misuse	148 (53.24%)
	Personality Disorders	100 (36%)
	Intellectual Impairment	32 (11.5%)
	Schizoaffective Disorder	18 (6.5%)
	Depression	17 (6.2%)
	Bipolar Affective Disorder	11 (4%)
	Autism Spectrum Disorder	11 (4%)
	Brain Injury	8 (2.9%)
	Anxiety Disorder	7 (2.5%)
	PTSD	3 (1.1%)

Note: IDD = Intellectual and Developmental Disorders Services. The 10 most prevalent diagnoses within the sample are presented here, categorised into conceptual groups. Due to individuals having multiple diagnoses, the sum of diagnoses frequencies is greater than the total sample size. For a full list of the diagnoses and their categorisation see Appendix C.

Prevalence of Childhood Abuse

Regarding the incidence of a history of childhood abuse within the study sample, a rating by the primary researcher was possible for all but 14 of the total sample. These missing cases were not possible to rate due to short stay within the hospital, or due to unwillingness or inability to describe their personal history during assessment.

Table 2. Prevalence of Childhood Abuse.

Type of Abuse	Number (%)
No childhood abuse	141 (53.4%)
CSA only	27 (10.2%)
CPA only	67 (25.4%)
Both CSA and CPA	29 (11%)

Note: Percentages calculated from remaining sample of 264, after removal of cases with missing data.

Incidents of Patient Victimization

Within the 5 year window examined, there were 383 incidents of peer-directed aggression or violence. This consisted of 115 physical, 54 attempted physical, 214 verbal, and 0 sexual assaults in the 5 years window. 102 (36.7%) individuals were exposed to at least 1 incident of any type of victimization, and 54 (19.4%) experienced at least one physical assault. 176 individuals (63.3%) experienced no victimization during the study period. 46 (16.5%) experienced only one incident, 27 (9.7%) experienced two incidents of AoV, and 14 experienced between three and five incidents of AoV (5%). The remaining sample can be split into those victimized between 6 and 15 times (n=10, 3.6%), 16-25 times (n=2, 0.7%), and 30 or more (n=3, 1.1%). Incidents involving the 5 most highly victimized individuals made up 151/383 of the total recorded incidents, with 27 attempted assaults and 48 physical assaults.

Predicting Victimization Status

Table 3. Differences between Victimized and Non-victimized Inpatients

	Victimized (n=104)			Non-victimized (n=174)			Comparison		
Demographics	N	Mean	SD	N	Mean	SD	*t*	*p*	*d*
Age at start	104	38.07	13.10	174	37.06	11.982	.635	.515	.08
LOS at start*	57	3246.02	3042.27	73	2449.03	3497.75	1.873	.063	.333
LOS by end*	104	2832.05	3101.83	174	1635.92	2689.46	-4.657	.000	.412
	N (%)			N (%)			X^2	*p*	*Phi*
White/White British	98 (94.2%)			163 (93.7%)			.000	1.00	-.011
Other Ethnicity	6 (5.8%)			11 (6.3%)					
Diagnoses									
Psychotic Disorders	67 (64%)			140 (80.5%)			7.980	.005	.003
Schizoaffective Disorder	12 (11.5%)			6 (3.4%)			5.763	.016	.159
Bipolar Disorder	4 (3.8%)			7 (4%)			.005*	.942	-.004
Personality Disorder	46 (44.2%)			54 (31%)			4.365	.037	.133
Intellectual Impairment	20 (19.2%)			12 (6.9%)			8.549	.003	.187
Depression	3 (2.9%)			14 (8%)			2.188	.139	-.104
PTSD	0 (0%)			3 (1.7%)			1.806*	.179	-.081

Note: Age and LOS by start calculated at 01.01.2014. LOS by end calculated at 31.12.2018. Length of stay by 01.01.2014 and by 31.12.2018 were found to be non-normally distributed and therefore were log transformed; these t-test results therefore refer to the difference in log-transformed means. Chi-Square values presented are Yates' Correction for Continuity. Where marked by an asterisk, Fisher's exact is presented.

Independent samples t-tests were conducted to compare age and length of stay for the victimized and non-victimized groups. There was no significant difference between the mean ages of those in the victimized and non-victimized groups; $t(278)= .635$, $p=515$, Cohen's $d=.08$), nor the length of stay within the hospital on entry to the study; $t(130)=1.873$, $p=.063$, Cohen's $d=.333$). Length of stay by the end of the study, on 31.12.2018, was significantly different between the two groups; $t(278)= -4.657$, $p<.001$, Cohen's $d=.412$), with the victimized group having been in the hospital for a significantly longer duration. It must be noted that for this particular analysis, individuals' likelihood of being victimised or not will be influenced by their length of stay within the study, as longer stays would provide a longer period of exposure to potential victimization.

Chi Squared Tests for Independence and Fisher's exact tests were conducted to explore the categorical variables. Significant associations were found between victimization and four diagnostic groups; psychotic disorders (X^2 (1, n=278) = 7.980, $p=.005$, $phi= .003$), schizoaffective disorder (X^2 (1, n=278) = 5.763, $p=.016$, $phi=.159$), personality disorders (X^2 (1, n=278) = 4.365, $p=.037$, $phi=.133$), and intellectual disability (X^2 (1, n=278) = 8.549, $p=.003$, $phi=.187$).

Logistic regression was then undertaken to establish whether the presence of childhood physical or sexual abuse could predict victimization status. For this analysis, abuse history was coded into 4 categories; neither abuse present, sexual abuse only, physical abuse only, and both abuse types present.

Table 4. Logistic Regression analysis to predict victimized or non-victimized status, using experience of childhood abuse.

	B	*SE*	Wald	*df*	*p*	Odds Ratio (OR)	95% CI for OR - Lower	95% CI for OR - Upper	*Nk* R^2
Constant	-1.395	.271	26.506	1	.000	.248			
Days in the Study (control)	.001	.000	25.184	1	.000	1.001	1.001	1.002	.172
No Abuse			7.306	3	.063				
Only CSA	-.358	.467	.587	1	.444	.699	.280	1.747	
Only CPA	-.462	.338	1.862	1	.172	.630	.325	1.223	
Both CSA and CPA	.813	.440	3.420	1	.064	2.255	.953	5.340	

Note: Nk R^2 *= Nagelkerke's* R^2

The model was statistically significant, X^2 (4, 264) = 35.639, p<.001, indicating it was able to distinguish between those who were victimized and those who were not, with a Nagelkerke's R^2 of .172, indicating a medium effect size. The model as a whole correctly classified 67.8% of cases. As presented in Table 4, only the control variable was a significant contributor to the model, indicating that none of the examined abuse categories contributed significantly to an individual's likelihood of victimisation.

As the aggressors for each incident were recorded, it was also possible to group individuals based on their overall role in incidents of peer-directed AoV; 151 (63%) individuals were not involved in any incidents of peer-directed AoV during the study period, 44 (15.8%) appeared as a victim only, 23 (8.3%) as aggressor only, and 60 (21.6%) appeared as both victim and aggressor. The victim and aggressor group contained all of the most highly victimized individuals (those victimised more than 15 times within the study period, n=5); this group's range of victimization experiences being 1-41, in comparison with the victim only group whose range was 0-4.

Prediction of the Frequency of Victimization

Hierarchical Multiple Linear Regressions were utilised to assess the ability of childhood abuse and key diagnosis variables to predict victimization frequency within the victimized

subsample (n=104), controlling for length of stay within the examined time period. Multicollinearity and singularity checks revealed no concerns, and though the scatterplot of the standardised predicted residuals did suggest some outliers according to Tabachnick and Fidell's (2013) definition, examination of Mahalanobis and Cook's distances confirmed no points exceeding the respective critical values. The test assumption of normality of residuals was found to be violated, therefore bootstrapping resampling (1000 samples, simple sampling method) was utilised to increase the robustness of the regression, as presented in Table 5. Non-bootstrapped output from this analysis can be found in Appendix D.

Table 5. Bootstrap Hierarchical Multiple Regression Analysis Summary Statistics; Predicting Number of Victimization Experiences with Childhood Abuse History and Mental Health Diagnoses

Step	Predictor Variables	*B*	*Bias*	*Std. Error*	*p value*	*95% CI - Lower*	*95% CI - Upper*
Step 1	**Constant**	.809	-.003	.662	.239	-.616	2.017
	Days in the study	.003	.000	.001	.030	.001	.005
Step 2	**Constant**	-.085	.101	.952	.933	-2.014	1.635
	Days in the study	.003	.000	.001	.026	.001	.005
	CSA only	6.300	-.151	4.349	.184	-1.050	16.068
	CPA only	1.783	-.018	2.189	.469	-1.445	7.101
	CSA and CPA	.535	-.004	.926	.575	-1.223	2.344
Step 3	**Constant**	2.539	-.031	1.853	.188	-.801	6.550
	Days in the study	.003	.000	.001	.017	.001	.005
	CSA only	4.013	-.078	3.320	.227	-1.891	11.506
	CPA only	.833	-.052	1.943	.697	-2.601	5.085
	CSA and CPA	.129	.035	1.348	.917	-2.639	3.083
	Psychotic Disorder	-4.127	.176	1.812	.051	-7.777	-.789
	Schizoaffective	-3.377	.166	2.363	.190	-8.307	1.067
	Personality Disorder	-.982	.110	1.366	.496	-3.841	1.628
	Intellectual Impairment	5.517	.017	2.316	.033	1.680	10.654

Note. N=101, after pairwise exclusion of 3 cases with missing data regarding history of childhood abuse.

Days within the study was entered at Step One, in order to statistically control for its influence. In Step Two, the categorical childhood abuse variable was entered using a series of dummy variables and examined alongside days in the study. Examining the individual

contributions as represented by their coefficient beta values, days within the study was the only significant contributor in Step Two; *B*=.003, *p*=.026, *95% CI*= .001 to .005.

Step Three of the regression entered the mental health variables. Diagnoses were selected for inclusion using a hypothesis-led approach; diagnoses which have been indicated by previous research regarding risk of victimization were considered for inclusion. Consideration was also given to the face validity of a group being associated; though substance misuse is a well-established risk factor for victimization there should be little to no access to illegal substances in this setting. The low incidence within the subsample of PTSD (n=0), Bipolar Affective Disorder (n=4), and Depression (n=3) precluded their inclusion in this analysis.

Excepting length of stay, when examining the individual bootstrap coefficients the only significant contributor to the model was intellectual disability (*B*=5.517, *p*=.033, *95% CI*= 1.680 to 10.654), though psychotic disorder was close to significance (*B*=-4.127, *p*=.051, *95% CI*=-7.777 to -.789). Intellectual impairment diagnosis was associated with a statistically significant increased incidence of victimization, whereas the psychotic disorder diagnostic group was associated with a borderline-significant decreased incidence of victimization.

Discussion

46.6% of the patients detained within the host hospital within the 5 year study period had experienced either childhood physical abuse (CPA), childhood sexual abuse (CSA), or both. This figure is consistent with Beer (2009), who reported 44.9% of their English low secure sample had experienced CPA, CSA or both. Examining each abuse type individually, 21.2% of the sample had experienced childhood sexual abuse, and 36.4% had experienced childhood physical abuse. These figures are slightly lower than, though broadly consistent with other similar papers which reported the prevalence of CSA and CPA in all-male or mixed-gender forensic mental health samples which report ranges of CSA from 24.3% to 46.9% (Bohle and

de Vogel, 2017; Macinnes, Macpherson, Austin, and Schwannauer, 2016) and ranges of CPA from 35.3% to 68.8% (Bohle and de Vogel, 2017, Spitzer et al., 2006). Considering the prevalence of experiencing multiple abuse types, 11% of the current study had a history of both CSA and CPA. The prevalence of childhood abuse reported from within the forensic mental health population is evidently variable, and there are numerous potential reasons for this, including differences in the specific population, definitions of abuse, measurement methodology, and sampling procedures used across studies (Bowen et al., 2018).

Considering the results related to the diagnoses, there were several notable findings. The vast majority of individuals had multiple diagnoses, with 120/278 having 3 or more formal diagnoses. There is some criticism of mental health services over-diagnosing their population, trying to find the correct label and medical treatment to match (Read, 2005; Luhrmann, 2012), with calls being made for focus to be on underlying difficulties and unmet needs (Johnstone and Boyle, 2018). At the same time, the relative frequency of more common diagnoses such as anxiety or depression was very low, and strikingly only 3 individuals had a diagnosis of PTSD, with none of these individuals having a history of childhood physical or sexual abuse. PTSD prevalence in other forensic inpatient populations has been reported at 16.9% (Spitzer et al., 2001), 28% (Spitzer et al., 2006), and 39% (Garieballa et al., 2006), and specifically within psychotic populations had been reported as high as 66.7% (Powers et al., 2016). Furthermore, research exploring the sequelae of childhood abuse has found that 37.7% of those with histories of CSA and 32.7% of those with histories of CPA met criteria for lifetime PTSD (Widom, 1999).

Significant under-recognition of trauma responses within SMI populations has been previously highlighted, accompanied by calls for better screening and attention for those with complex co-morbidities (for a critical review see Grubaugh et al., 2011). Given that 81% of this sample had a diagnosis of a psychotic or schizoaffective disorder, and 46.6% had

experienced CSA, CPA or both, the very low PTSD prevalence appears suggestive of under-recognition of trauma responses. Classically, PTSD has been associated with certain kinds of trauma; those experienced at war or single event traumas such as a car accident or natural disaster. Though complex PTSD is to be included in the International Classification of Diseases 11th version (ICD-11), in order to better capture the trauma responses of those exposed to prolonged and severe interpersonal trauma such as childhood abuse, the results of this study suggest that trauma continues to be under recognised within the formulation and diagnosis of mental health difficulty in forensic settings.

Over one third of all individuals within this study experienced at least one incident of victimization during the study period, with 54 (19.4%) experiencing at least one physical assault. This is consistent with the rates of victimization reported by Grossi et al. (2019) and Griswold et al. (2018) in their similar research examining victimization within forensic patients in the USA. Of those victimized, the significant majority (94.3%) were assaulted between 1 and 5 times within the 5 year period. A small subset of patients were assaulted at a very high frequency; 5 individuals (2%) were assaulted more than 15 times, making up 39.4% of all recorded incidents in the study period.

This rate of victimization is wholly unacceptable, and represents a significant failure in the safeguarding of an already vulnerable population. Patients detained within secure settings are by definition unable to leave the environment, and are largely unable to avoid close contact with their aggressors. One possibility to improve the safeguarding of patients, and the rationale for conducting the present study, is therefore to identify individuals at heightened risk of victimization. This would pave the way for care planning to mitigate this risk, perhaps including separating those at high risk of victimization from those at high risk of aggression (Grossi et al., 2019).

In contrast with previous research in this area, childhood abuse did not predict victimized or non-victimized status in this study. One potential reason for this could be the categorical nature of the abuse and victimization variables within this analysis; dichotomous or categorical variables naturally contain less variation, and may mask more subtle relationships where measures which represent severity, duration, personal impact or repetition may have been more sensitive. There is some evidence to suggest that experiencing multiple types of abuse is of relevance to increased victimization risk, due to a wider spread of and qualitatively different impact on a person's development (Cloitre et al., 2009), and that the severity and compounding of abuses experienced is significant in predicting outcomes (Schilling, Aseltine, and Gore, 2008). Another potential reason for this result could be that the other forms of childhood abuse not captured in this study are highly influential; increasing evidence is being found that both emotional and physical neglect have profound impacts on adult outcomes (Eckert et al., 2017; Garieballa et al., 2006), however it was not possible to examine these in this study.

When turning to predicting frequency of victimization, a longer length of stay within the study period, representing longer exposure to potential incidents, was associated with an increased number of incidents of victimization. Though this is unsurprising, the causal direction of this association is not as straightforward as it might initially appear. Within this study, when comparing the victimized and not-victimized group, the total length of stay by the end of the study period was found to be significantly different, but the total length of stay on entry to the study was not. It is possible that this is capturing some impact of victimization on length of stay; over the 5 years of the study, the victimized group's mean length of stay moved further away from the non-victimized group. Given that it is known that victimization increases the risk of further victimization (Lam and Rosenheck, 1998), risk of aggressive behaviour (Sadeh, Binder, and McNiel, 2014), and has a negative general impact of mental

health and symptoms (Goodman, Dutton, and Harris, 1997; Marley and Buila, 2001), it is reasonable to propose that experiencing victimization could therefore delay an individual's progress towards discharge and that this impact would compound over time. Given that previous research has also linked more severe mental health difficulty with increased risk of victimisation (Maniglio, 2009) this could be a contributor to the apparent association. The relationship between length of stay and victimization is most likely a complex interaction without a clear single direction of causation, and with multiple mediators and moderators.

Intellectual impairment differentiated the victimized from non-victimised group, and was a significant predictor of an increased rate of victimization, in line with previous research. Several of the theories outlined previously can be considered to be applicable to inpatient forensic settings; externalising behaviour angering or frightening others, and therefore increasing risk of victimization (Fisher et al., 2012) is equally likely in this setting, if not more so given that emotional instability and paranoia are more common within inpatient populations than in the community. Poorer interpersonal skills as a risk factor (Fisher, Moskowitz, and Hodapp, 2013) also logically translates into the inpatient environment.

Both schizoaffective disorder and personality disorder diagnoses, which have been associated with increased risk of victimization in other populations, were not found to be predictive in this environment. One possibility is that the relative low incidence within the sample limited the variability within the data, and therefore prevented an association being identified. Alternately it is possible that these diagnoses, as grouped within this study, are not associated with victimization within this setting. The uniqueness of the forensic inpatient setting, in terms of resident population and the physical qualities of the environment, may lead to significantly different patterns of risk and protective factors than are seen in the community (Griswold et al., 2018). This could be related to the theories underpinning why certain characteristics may increase risk of victimization. Theories related to increased contact with

criminal others are of limited utility here where social contact is drastically limited and highly supervised. Theories related to the higher prevalence of substance misuse in SMI populations (Silver, Mulvey, and Monahan, 1999; Sells, Rowe, Fisk, and Davidson, 2003), which propose that it is the substance misuse, associated behavioural changes, and contact with dangerous individuals which increases risk of victimization, also don't translate to this setting due to lack of access both to substances themselves and to the high risk situations and individuals surrounding their use.

Interestingly, having a diagnosis of a psychotic disorder had an unexpected negative association with victimization. When comparing the victimized and non-victimized group, there were significantly fewer individuals with a psychotic disorder in the victimized group. Within the regression analysis, psychotic disorder as a covariate was approaching significance in predicting frequency of victimization, with having the diagnosis appearing to be associated with a decreased frequency of victimization. This stands in stark contrast with the existing evidence base, which has found psychosis to increase risk of victimization. It may again be that the process by which psychosis increases risk for those in the community does not transfer to the forensic inpatient environment. Theories have included that behaviours associated with psychotic disorders make a person vulnerable through irritating or frightening others (Hiday, 1995; Hiday et al., 2002); it is possible that within a forensic inpatient environment such behaviour is identified and responded to by the nursing team such that the risk does not play out as it might in the community. Clearly, additional exploration of this finding is warranted to explore how different risk factors are related to risk of victimization in this setting, and how they are identified and mitigated.

Limitations of this study

Within this study, a case-file review method was utilised to measure the prevalence of childhood abuse. Both case file review and self-report measures of childhood abuse as approaches have weaknesses, however as the HCR 20 V^3 includes both and also involves examination of any 3rd party material such as police or social service records, it is believed to be acceptably reliable as an approach, despite the inherent difficulties associated with attempting to measure historical childhood abuse.

The archival nature of the study also limited examination of mental health difficulty to formal diagnoses only. Further, due to the wide range of specific diagnoses present in the sample, it was necessary to combine families of diagnoses into categories. Though there are benefits to this, the use of dichotomous measures of mental health prevents exploration of more nuanced or symptom-level relationships. There is some evidence that it is specific symptoms (Fortugno et al., 2013; Hiday et al., 2002) or difficulties (Goodman, Rosenberg, Mueser, and Drake, 1997; Sells, Rowe, Fisk, and Davidson, 2003) within severe mental illness which are indicated in the increased risk of victimization rather than the presence or absence of a SMI overall. These may function in a more dynamic way in relation to risk of victimisation, which would not be captured by the present study design.

A final limitation of the present study is in relation to the diversity and therefore generalizability of the included sample. 93.5% of the sample were white, with the remaining 6.5% made up of small numbers belonging to other ethnic groups. Of note, people of colour were overrepresented within the study sample when compared to the wider Scottish population, where the most recent census in 2011 reports 96% are white (Office for National Statistics, 2016). It is also important to recognise that forensic mental health systems are deeply intertwined with both the legal and healthcare systems of their country, meaning that the specific frameworks that bring a given individual to be detained in such a setting will be

quite particular to the location, and therefore one forensic inpatient sample should not be assumed to be comparable to other regions.

Clinical Implications

The high incidence of childhood abuse found within this study reinforces the importance of all patients being asked about any early traumas. Furthermore, additional attention needs to be paid to assessing the impact of these experiences on the present, specifically a structured and validated screening for trauma reactions including PTSD and C-PTSD, to ensure these are not missed or overshadowed by other diagnoses such as schizophrenia or personality disorder, which have been suggested to share significant conceptual or symptom profile overlap with trauma reactions (Alsawy, Wood, Taylor, and Morrison, 2015; Lewis and Grenyer; 2009). Further, given the apparent high incidence of childhood abuse identified within previous literature and the present study, some form of trauma-informed intervention could be made available to all patients within a forensic inpatient setting; for example ward-based "Safety and Stabilisation" sessions focusing on emotion recognition and regulation could be implemented within a phased approach to trauma treatment (Cloitre et al., 2011) in the context of a therapeutic environment.It is also apparent that within this setting, particular characteristics make an individual at higher risk of victimization. Intellectual impairment and longer length of stay are risk factors for increased incidence of victimization; these factors must be considered while care planning, to recognise and reduce this risk. This might include directly acting to mitigate the impact of these factors in some way, or by being mindful about those at higher risk of victimization being cared for within close proximity to those at higher risk of aggression. Though specialist forensic care settings for those with Intellectual Impairment do exist, placement within these can be difficult to secure if the level of impairment is borderline, or the level of aggression is above that which can be safely managed outside of a high secure setting. Therefore more awareness and attention is needed

within general forensic psychiatric services to those with intellectual impairments within these settings, in order to manage their increased risk of victimisation. This might include more close supervision and monitoring of social contact between these individuals and other patients, or perhaps social skills programmes if some element of the risk could be understood to be as a result of impaired relational skills.

The very high frequency of victimization seen in a small subset of the sample in this study also suggests that for some patients, safeguarding procedures as they stand are not adequately protective. Care teams need to become more cognizant of their patients as victims as well as aggressors, though the two are closely intertwined in this population. One option could be the setting up of working groups within the hospital setting which seeks to explore and address the gap in safeguarding and seek to develop new ways of working which address this.

When exploring the involvement of individuals in peer-directed AoV overall, it is notable yet perhaps unsurprising that all of those in this highly victimized group appeared as both aggressor and victim in the extracted incidents. It is known that experiences of victimization increase aggressive behaviour (Hiday et al., 2001; Sadeh, Binder, and McNiel, 2014); there is likely to be a vicious cycle for the highly victimized group, whereby experience of victimization worsens mental health difficulty, increases aggression, and therefore slows progression towards discharge. When care planning for these individuals, their risk of victimisation must therefore be included in risk management processes if we are to break this cycle for this especially vulnerable group.

Recommendations for future research

More research is needed which focuses on inpatients as victims rather than only perpetrators of aggression. In addition to being an under researched area, the significant imbalance in

published research's focus may be contributing to the negative stereotypes of those with SMI being aggressive or dangerous in society (Choe, Teplin, and Abram, 2008).

Future research into inpatient victimization would benefit from a prospective approach, including a focus on identifying dynamic risk factors such as particular symptoms or difficulties which may be associated with increased risk of victimization. As well as allowing for a trans-diagnostic understanding of risk factors to be developed, this would also potentially clarify how specific risk factors function to increase risk, allowing for a more sensitive and reactive risk identification, and direct interventions to mitigate these risk factors. Further, it would be beneficial to use a more nuanced measure of childhood abuse, including a wider variety of types of abuse and victimization, and also potentially including the concept of poly-victimization (Finkelhor, 2007), in order to more comprehensively explore the impact of this on adult victimization risk. The present study has identified that some mental health diagnoses are associated with victimization risk, however future research could seek to explore interactions between risk factors such as mediation effects.

A qualitative exploration of the apparent motivations of aggressors, and experience of victims would also be of benefit. Research examining patients' impression of aggression directed toward staff identified reasons and risks that had not been highlighted previously (Duxbury and Whittington, 2005; Gudde, Olsø, Whittington, and Vatne, 2015; Lamanna et al., 2016); similarly valuable insights are likely to exist in this area. Given that victimization is evidently a common and highly negative experience for those detained within forensic mental health care, this is an area we have a duty to recognise, seek to understand, and actively work to reduce.

References

Alsawy, S., Wood, L., Taylor, P. J., and Morrison, A. P. (2015). Psychotic experiences and PTSD: exploring associations in a population survey. *Psychological medicine, 45*(13), 2849-2859.

Anderson, C. (2002). Workplace violence: Are some nurses more vulnerable? *Issues in mental health nursing, 23*(4), 351-366.

Auslander, W., Tlapek, S. M., Threlfall, J., Edmond, T., and Dunn, J. (2018). Mental health pathways linking childhood maltreatment to interpersonal revictimization during adolescence for girls in the child welfare system. *Journal of interpersonal violence, 33*(7), 1169-1191.

Bochenek, M., and Brown, A. W. (2001*). Hatred in the hallways: Violence and discrimination against lesbian, gay, bisexual, and transgender students in US schools*. Human Rights Watch.

Bohle, A., and de Vogel, V. (2017). Gender differences in victimization and the relation to personality disorders in forensic psychiatry. *Journal of Aggression, Maltreatment and Trauma, 26*(4), 411-429.

Bowen, K., Jarrett, M., Stahl, D., Forrester, A., and Valmaggia, L. (2018). The relationship between exposure to adverse life events in childhood and adolescent years and subsequent adult psychopathology in 49,163 adult prisoners: A systematic review. *Personality and Individual Differences, 131*, 74-92.

Braga, R. J., Reynolds, G. P., and Siris, S. G. (2013). Anxiety comorbidity in schizophrenia. *Psychiatry research, 210*(1), 1-7.

Bujang, M. A., Sa'at, N., and Bakar, T. M. I. T. A. (2018). Sample size guidelines for logistic regression from observational studies with large population: emphasis on the accuracy between statistics and parameters based on real life clinical data. *The Malaysian journal of medical sciences: MJMS, 25*(4), 122.

Calvete, E., Fernández-González, L., González-Cabrera, J. M., and Gámez-Guadix, M. (2018). Continued bullying victimization in adolescents: Maladaptive schemas as a mediational mechanism. *Journal of youth and adolescence, 47*(3), 650-660.

Carr, C. P., Martins, C. M. S., Stingel, A. M., Lemgruber, V. B., and Juruena, M. F. (2013). The role of early life stress in adult psychiatric disorders: a systematic review according to childhood trauma subtypes. *The Journal of nervous and mental disease, 201*(12), 1007-1020.

Chaplin R, McGeorge M and Lelliott P (2006) The National Audit of Violence: In-patient care for adults of working age. *The Psychiatrist 30*(12): 444–446.

Choe, J. Y., Teplin, L. A., and Abram, K. M. (2008). Perpetration of violence, violent victimization, and severe mental illness: balancing public health concerns. *Psychiatric services, 59*(2), 153-164.

Classen, C. C., Palesh, O. G., and Aggarwal, R. (2005). Sexual revictimization: A review of the empirical literature. *Trauma, Violence, and Abuse, 6*(2), 103-129.

Cloitre, M., Stolbach, B. C., Herman, J. L., Kolk, B. V. D., Pynoos, R., Wang, J., and Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of traumatic stress, 22*(5), 399-408.

Coid, J., Petruckevitch, A., Feder, G., Chung, W., Richardson, J., and Moorey, S. (2001). Relation between childhood sexual and physical abuse and risk of revictimization in women: A crosssectional survey. *The Lancet, 358*, 450-454.

Cornaggia, C. M., Beghi, M., Pavone, F., and Barale, F. (2011). *Aggression in psychiatry wards: a systematic review. Psychiatry research, 189*(1), 10-20.

Cougle, J. R., Resnick, H., and Kilpatrick, D. G. (2009). A prospective examination of PTSD symptoms as risk factors for subsequent exposure to potentially traumatic events among women. *Journal of Abnormal Psychology, 118*, 405-411

Crawford, E., and Wright, M. O. D. (2007). The impact of childhood psychological maltreatment on interpersonal schemas and subsequent experiences of relationship aggression. *Journal of Emotional Abuse, 7*(2), 93-116.

Cuevas, C. A., Finkelhor, D., Clifford, C., and Ormrod, R. K. (2010). Psychological distress as a risk factor for re-victimization in children. *Child Abuse and Neglect, 34*, 235–243.

Culatta, E., Clay-Warner, J., Boyle, K. M., and Oshri, A. (2020). Sexual revictimization: A routine activity theory explanation. *Journal of interpersonal violence, 35*(15-16), 2800-2824.

Dack, C., Ross, J., Papadopoulos, C., Stewart, D., and Bowers, L. (2013). A review and meta-analysis of the patient factors associated with psychiatric in-patient aggression. *Acta Psychiatrica Scandinavica, 127*(4), 255-268.

Daffern, M., Mayer, M., and Martin, T. (2006). Staff gender ratio and aggression in a forensic psychiatric hospital. *International journal of mental health nursing, 15*(2), 93-99.

Day, D. M., Hart, T. A., Wanklyn, S. G., McCay, E., Macpherson, A., and Burnier, N. (2013). Potential mediators between child abuse and both violence and victimization in juvenile offenders. *Psychological services, 10*(1), 1.

de Mooij, L. D., Kikkert, M., Lommerse, N. M., Peen, J., Meijwaard, S. C., Theunissen, J., Duurkoop, P.W., Goudriaan, A.E., Van, H.L., Beekman, A.T. and Dekker, J. J. (2015). Victimisation in adults with severe mental illness: prevalence and risk factors. *The British Journal of Psychiatry, 207*(6), 515-522.

Dean, K., Moran, P., Fahy, T., Tyrer, P., Leese, M., Creed, F., Burns, T., Murray, R., and Walsh, E. (2007). Predictors of violent victimization amongst those with psychosis. *Acta Psychiatrica Scandinavica, 116*(5), 345-353.

De Ruiter, C., & Trestman, R. L. (2007). Prevalence and treatment of personality disorders in Dutch forensic mental health services. American Academy of Psychiatry and the Law, 35(1), 92.

Douglas, K. S., Hart, S. D., Webster, C. D., and Belfrage, H. (2013*). HCR-20V3: Assessing risk for violence: User guide.* Mental Health, Law, and Policy Institute, Simon Fraser University.

Dudeck, M., Sosic-Vasic, Z., Otte, S., Rasche, K., Leichauer, K., Tippelt, S., Shenar, R., Klingner, S., Vasic, N. and Streb, J. (2016). The association of adverse childhood experiences and appetitive aggression with suicide attempts and violent crimes in male forensic psychiatry inpatients. Psychiatry research, 240, 352-357.

Duxbury, J., and Whittington, R. (2005). Causes and management of patient aggression and violence: staff and patient perspectives. *Journal of advanced nursing, 50*(5), 469-478.

Eckert, M., Schel, S., Kennedy, H., and Bulten, B. (2017). Patient characteristics related to length of stay in Dutch forensic psychiatric care. *The Journal of Forensic Psychiatry and Psychology, 28*(6), 863-880.

El Missiry, A., Abd El Meguid, M., Soltan, M., and El Missiry, M. (2014). Sociodemographic and Clinical Characteristics of Victimized Versus Non-Victimized Patients with Schizophrenia: An Egyptian Study. *Activitas Nervosa Superior, 56*(4), 121-134.

Ellison, L., and Berzins, K. (2019). Responses to inpatient victimisation in mental health settings in England and Wales. *International Review of Victimology, 25*(2), 141-156.

Equality Network (2017) *Scottish LGBTI hate crime report 2017*. Retrieved from: https://www.equality-network.org/wp-content/uploads/2017/10/en_hc17-full_final1alores.pdf

Faul, F., Erdfelder, E., Lang, A.-G., and Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191. 5.

Filipas, H. H., and Ullman, S. E. (2006). Child sexual abuse, coping responses, self-blame, posttraumatic stress disorder, and adult sexual revictimization. *Journal of Interpersonal Violence, 21*(5), 652-672.

Filipas, H. H., and Ullman, S. E. (2006). Child sexual abuse, coping responses, self-blame, posttraumatic stress disorder, and adult sexual revictimization. *Journal of Interpersonal Violence, 21*(5), 652-672.

Finkelhor, D. (2007). Developmental victimology. *Victims of crime, 3*, 9-34.

Finkelhor, David, Ormrod, Richard K., and Turner, Heather A. (2007). Re-Victimization Patterns in a National Longitudinal Sample of Children and Youth. *Child Abuse and Neglect: The International Journal, 31*(5), 479-502.

Fisher, M. H., Baird, J. V., Currey, A. D., and Hodapp, R. M. (2016). Victimisation and Social Vulnerability of Adults with Intellectual Disability: A Review of Research Extending beyond Wilson and Brewer. *Australian Psychologist, 51*(2), 114-127.

Fisher, M. H., Moskowitz, A. L., and Hodapp, R. M. (2012). Vulnerability and experiences related to social victimization among individuals with intellectual and developmental disabilities. *Journal of Mental Health Research in Intellectual Disabilities, 5(*1), 32-48.

Fisher, M. H., Moskowitz, A. L., and Hodapp, R. M. (2013).Differences in social vulnerability among individuals with autismspectrum disorder, Williams syndrome, and Down syndrome. *Research in Autism Spectrum Disorders, 7*, 931–937.

Flannery, R. B., Wyshak, G., Tecce, J. J., and Flannery, G. J. (2014). Characteristics of American assaultive psychiatric patients: Review of published findings, 2000–2012. *Psychiatric quarterly, 85*(3), 319-328.

Fortier, M. A., DiLillo, D., Messman-Moore, T. L., Peugh, J., DeNardi, K. A., and Gaffey, K. J. (2009). Severity of child sexual abuse and revictimization: The mediating role of coping and trauma symptoms. *Psychology of Women Quarterly, 33*, 308-320.

Fortugno, F., Katsakou, C., Bremner, S., Kiejna, A., Kjellin, L., Nawka, P., Raboch, J., Kallert, T. and Priebe, S. (2013). Symptoms associated with victimization in patients with schizophrenia and related disorders. *PLoS One, 8*(3), e58142.

Garieballa, S., Schauer, M., Neuner, F., Saleptsi, E., Kluttig, T., Elbert, T., Hoffmann, K., Rockstroh, B. (2006). Traumatic events, PTSD, and psychiatric comorbidity in forensic patients – assessed by questionnaires and diagnostic interview. Clinical Practice and Epidemiology in Mental Health: CP and EMH, 2(1), 7.

Gaynes, B. N., Brown, C. L., Lux, L. J., Brownley, K. A., Van Dorn, R. A., Edlund, M. J., Coker-Schwimmer, E., Weber, R.P., Sheitman, B., Zarzar, T. and Viswanathan, M. (2017). Preventing and

de-escalating aggressive behavior among adult psychiatric patients: a systematic review of the evidence. *Psychiatric services, 68*(8), 819-831.

Gerberich, S. G., Church, T. R., McGovern, P. M., Hansen, H., Nachreiner, N. M., Geisser, M. S., Ryan, A.D., Mongin, S.J., Watt, G.D. and Jurek, A. (2005). Risk factors for work-related assaults on nurses. *Epidemiology,* 704-709.

Goodman, L. A., Dutton, M. A., and Harris, M. (1997). The relationship between violence dimensions and symptom severity among homeless, mentally ill women. *Journal of traumatic Stress, 10*(1), 51-70.

Goodman, L. A., Rosenberg, S. D., Mueser, K. T., and Drake, R. E. (1997). Physical and sexual assault history in women with serious mental illness: prevalence, correlates, treatment, and future research directions. *Schizophrenia bulletin, 23*(4), 685-696.

Gray, N. S., Benson, R., Craig, R., Davies, H., Fitzgerald, S., Huckle, P., Maggs, R., Taylor, J., Trueman, M., Williams, T. and Snowden, R. J. (2011). The Short-Term Assessment of Risk and Treatability (START): A prospective study of inpatient behavior. *International Journal of Forensic Mental Health, 10*(4), 305-313.

Griswold, H., Green, D., Cruise, K., Belfi, B., Lam, J., Grossi, L., Cucco, E. and Iskander, E. (2018). Assessing Risk for Victimization in a Forensic Psychiatric Setting Using the Short-Term Assessment of Risk and Treatability. Violence and Victims, 33(6), 1012-1035.

Grossi, L. M., Green, D., Griswold, H., Cabeldue, M., and Belfi, B. (2019). Assessing Inpatient Victimization Risk Among Insanity Acquittees Using the HCR-20V3. *The journal of the American Academy of Psychiatry and the Law, 47*(3), 286-298.

Grubaugh, A. L., Zinzow, H. M., Paul, L., Egede, L. E., and Frueh, B. C. (2011). Trauma exposure and posttraumatic stress disorder in adults with severe mental illness: A critical review. *Clinical psychology review, 31*(6), 883-899.

Gudde, C. B., Olsø, T. M., Whittington, R., and Vatne, S. (2015). Service users' experiences and views of aggressive situations in mental health care: a systematic review and thematic synthesis of qualitative studies. *Journal of multidisciplinary healthcare, 8*, 449.

Hahn, J. W., McCormick, M. C., Silverman, J. G., Robinson, E. B., and Koenen, K. C. (2014). Examining the impact of disability status on intimate partner violence victimization in a population sample. *Journal of interpersonal violence, 29*(17), 3063-3085.

Hartz, S. M., Pato, C. N., Medeiros, H., Cavazos-Rehg, P., Sobell, J. L., Knowles, J. A., Bierut, L.J. and Pato, M. T. (2014). Comorbidity of severe psychotic disorders with measures of substance use. *JAMA psychiatry, 71*(3), 248-254.

Healthcare Commission. (2005). *National audit of violence (2003-2005)*. London: Healthcare Commission.

Heerde, J. A., Scholes-Balog, K. E., and Hemphill, S. A. (2015). Associations between youth homelessness, sexual offenses, sexual victimization, and sexual risk behaviors: a systematic literature review. *Archives of sexual behavior, 44(*1), 181-212.

Hiday, V. A. (1995). The social context of mental illness and violence. *Journal of Health and Social Behavior, 36*(2), 122-137.

Hiday, V. A. (1997). Understanding the connection between mental illness and violence. *International Journal of Law and Psychiatry, 20*(4), 399–417.

Hiday, V. A., Swanson, J. W., Swartz, M. S., Borum, R., and Wagner, H. R. (2001). Victimization: a link between mental illness and violence? International journal of law and psychiatry. *24*(6), 559–572.

Hiday, V. A., Swartz, M. S., Swanson, J. W., Borum, R., and Wagner, H. R. (2002). Impact of outpatient commitment on victimization of people with severe mental illness. *American journal of Psychiatry, 159*(8), 1403-1411.

Hodgins, S., Alderton, J., Cree, A., Aboud, A., and Mak, T. (2007). Aggressive behaviour, victimisation and crime among severely mentally ill patients requiring hospitalisation. *The British Journal of Psychiatry, 191*(4), 343-350.

Hodgins, S., Lincoln, T., and Mak, T. (2009). Experiences of victimisation and depression are associated with community functioning among men with schizophrenia. *Social psychiatry and psychiatric epidemiology, 44*(6), 448-457.

Hong, J. S., Espelage, D. L., Grogan-Kaylor, A., and Allen-Meares, P. (2012). Identifying potential mediators and moderators of the association between child maltreatment and bullying perpetration and victimization in school. *Educational Psychology Review, 24*(2), 167-186.

Hosser, D., Raddatz, S., and Windzio, M. (2007). Child maltreatment, revictimization, and violent behavior. *Violence and victims, 22*(3), 318.

Jones, L., Bellis, M. A., Wood, S., Hughes, K., McCoy, E., Eckley, L., Bates, G., Mikton, C., Shakespeare, T. and Officer, A. (2012). Prevalence and risk of violence against adults with disabilities: a systematic review and meta-analysis of observational studies. *The Lancet, 379*(9826), 1621-1629.

Iozzino, L., Ferrari, C., Large, M., Nielssen, O., and De Girolamo, G. (2015). Prevalence and risk factors of violence by psychiatric acute inpatients: a systematic review and meta-analysis. *PloS one, 10*(6), e0128536.

Iverson, K. M., Gradus, J. L., Resick, P. A., Suvak, M. K., Smith, K. F., and Monson, C. M. (2011). Cognitive–behavioral therapy for PTSD and depression symptoms reduces risk for future intimate partner violence among interpersonal trauma survivors. *Journal of consulting and clinical psychology, 79*(2), 193.

Juvonen, J., and Graham, S. (2014). Bullying in schools: The power of bullies and the plight of victims. *Annual review of psychology, 65*, 159-185.

Lam, J. A., and Rosenheck, R. (1998). The effect of victimization on clinical outcomes of homeless persons with serious mental illness. *Psychiatric Services, 49*(5), 678-683.

Lamanna, D., Ninkovic, D., Vijayaratnam, V., Balderson, K., Spivak, H., Brook, S., and Robertson, D. (2016). Aggression in psychiatric hospitalizations: a qualitative study of patient and provider perspectives. *Journal of mental health, 25*(6), 536-542.

Larney, S., Conroy, E., Mills, K. L., Burns, L., and Teesson, M. (2009). Factors associated with violent victimisation among homeless adults in Sydney, Australia. *Australian and New Zealand Journal of Public Health, 33*(4), 347-351.

Latalova, K., Kamaradova, D., and Prasko, J. (2014). Violent victimization of adult patients with severe mental illness: a systematic review. *Neuropsychiatric disease and treatment, 10*, 1925.

Lewis, K. L., and Grenyer, B. F. (2009). Borderline personality or complex posttraumatic stress disorder? An update on the controversy. *Harvard review of psychiatry, 17*(5), 322-328.

Little, L. (1999). Risk factors for assaults on nursing staff: childhood abuse and education level. *Jona: The Journal of Nursing Administration, 29*(12), 22-29.

Loubser I, Chaplin R and Quirk A (2009) Violence, alcohol and drugs: The views of nurses and patients on psychiatric intensive care units, acute adult wards and forensic wards. *Journal of Psychiatric Intensive Care 5(*1): 33–39.

Macinnes, M., Macpherson, G., Austin, J., and Schwannauer, M. (2016). Examining the effect of childhood trauma on psychological distress, risk of violence and engagement, in forensic mental health. *Psychiatry research, 246*, 314-320.

Maniglio, R. (2009). Severe mental illness and criminal victimization: a systematic review. *Acta Psychiatrica Scandinavica, 119*(3), 180-191.

Marley, J. A., and Buila, S. (2001). Crimes against people with mental illness: types, perpetrators, and influencing factors. *Social Work, 46*(2), 115-124.

McCabe, M. P., Cummins, R. A., and Reid, S. B. (1994). An empirical study ofthe sexual abuse of people with intellectual disability. *Sexuality and Disability, 12*, 297–306.

Messman-Moore, T. L., and Long, P. J. (2000). Child sexual abuse and revictimization in the form of adult sexual abuse, adult physical abuse, and adult psychological maltreatment. *Journal of interpersonal violence, 15*(5), 489-502.

Miethe, T. D., and Meier, R. F. (1994). *Crime and its social context: Toward an integrated theory of offenders, victims, and situations.* Suny Press.

Mind (2004). *Mind in action. Ward watch campaign special*. MIND Publications; London

Mitra, M., Mouradian, V. E., and Diamond, M. (2011). Sexual violence victimization against men with disabilities. *American journal of preventive medicine, 41*(5), 494-497.

Nicholls, T. L., Brink, J., Greaves, C., Lussier, P., and Verdun-Jones, S. (2009). Forensic psychiatric inpatients and aggression: An exploration of incidence, prevalence, severity, and interventions by gender. International journal of law and psychiatry, 32(1), 23-30.

Office for National Statistics; National Records of Scotland; Northern Ireland Statistics and Research Agency (2016): 2011 Census aggregate data. UK Data Service (Edition: June 2016). DOI: http://dx.doi.org/10.5257/census/aggregate-2011-1

O'Shea, L. E., Picchioni, M. M., and Dickens, G. L. (2016). The predictive validity of the Short-Term Assessment of Risk and Treatability (START) for multiple adverse outcomes in a secure psychiatric inpatient setting. *Assessment, 23*(2), 150-162.

Pallant, J. (2020*). SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. Routledge.

Papadopoulos, C., Ross, J., Stewart, D., Dack, C., James, K., and Bowers, L. (2012). The antecedents of violence and aggression within psychiatric in-patient settings. *Acta Psychiatrica Scandinavica, 125*(6), 425-439.

Ramesh, T., Igoumenou, A., Montes, M. V., and Fazel, S. (2018). Use of risk assessment instruments to predict violence in forensic psychiatric hospitals: a systematic review and meta-analysis. European psychiatry, 52, 47-53.

Risser, H. J., Hetzel-Riggin, M. D., Thomsen, C. J., and McCanne, T. R. (2006). PTSD as a mediator of sexual revictimization: The role of reexperiencing, avoidance, and arousal symptoms. *Journal of Traumatic Stress, 19,* 687-698.

Rodríguez-Acosta, R. L., Myers, D. J., Richardson, D. B., Lipscomb, H. J., Chen, J. C., and Dement, J. M. (2010). Physical assault among nursing staff employed in acute care. *Work, 35*(2), 191-200.

Sabri, B., St. Vil, N. M., Campbell, J. C., Fitzgerald, S., Kub, J., and Agnew, J. (2015). Racial and ethnic differences in factors related to workplace violence victimization. *Western journal of nursing research, 37*(2), 180-196.

Sadeh, N., Binder, R. L., and McNiel, D. E. (2014). Recent victimization increases risk for violence in justice-involved persons with mental illness. *Law and Human Behavior, 38*(2), 119.

Savla, G. N., Vella, L., Armstrong, C. C., Penn, D. L., and Twamley, E. W. (2013). Deficits in domains of social cognition in schizophrenia: a meta-analysis of the empirical evidence. *Schizophrenia bulletin, 39(*5), 979-992.

Schilling, E. A., Aseltine, R. H., and Gore, S. (2008). The impact of cumulative childhood adversity on young adult mental health: Measures, models, and interpretations. *Social science and medicine, 66*(5), 1140-1151.

Scrafford, K. E., Grein, K., and Miller-Graff, L. E. (2018). Legacies of childhood victimization: Indirect effects on adult mental health through re-victimization. *Journal of Child and Adolescent Trauma, 11*(3), 317-326.

Sells, D. J., Rowe, M., Fisk, D., and Davidson, L. (2003). Violent victimization of persons with co-occurring psychiatric and substance use disorders. *Psychiatric Services, 54*(9), 1253-1257.

Silver, E., Mulvey, E. P., and Monahan, J. (1999). Assessing violence risk among discharged psychiatric patients: towards an ecological approach. *Law and Human Behavior, 23,* 237–255.

Singh, J. P., Desmarais, S. L., Hurducas, C., Arbach-Lucioni, K., Condemarin, C., Dean, K., Doyle, M., Folino, J.O., Godoy-Cervera, V., Grann, M. and Ho, R. M. Y. (2014). International perspectives on the practical application of violence risk assessment: A global survey of 44 countries. *International Journal of Forensic Mental Health, 13*(3), 193-206.

Spitzer, C., Chevalier, C., Gillner, M., Freyberger, H. J., and Barnow, S. (2006). Complex posttraumatic stress disorder and child maltreatment in forensic inpatients. The Journal of Forensic Psychiatry and Psychology, 17(2), 204-216.

Spitzer, C., Chevalier, C., Gillner, M., Freyberger, H. J., and Barnow, S. (2006). Complex posttraumatic stress disorder and child maltreatment in forensic inpatients. *The Journal of Forensic Psychiatry and Psychology, 17*(2), 204-216.

Spitzer, C., Dudeck, M., Liss, H., Orlob, S., Gillner, M., and Freyberger, H. J. (2001). Post-traumatic stress disorder in forensic inpatients. *Journal of Forensic Psychiatry, 12*(1), 63-77.

Spriggs, A., Halpern, C., and Martin, S. (2009). Continuity of adolescent and early adult partner violence victimisation: Association with witnessing violent crime in adolescence. *Journal of Epidemiology and Community Health, 63*(9), 741.

Tabachnick, B. G., and Fidell, L. S. (2013). *Using multivariate statistics: International edition.* Pearson 2012.

Timmerman, I. G., and Emmelkamp, P. M. (2001). The relationship between traumatic experiences, dissociation, and borderline personality pathology among male forensic patients and prisoners. *Journal of personality disorders, 15*(2), 136-149.

Ventimiglia, N. (2011). LGBT selective victimization: Unprotected youth on the streets. *JL Soc'y, 13*, 439.

Walsh, E., Moran, P., Scott, C., McKenzie, K., Burns, T., Creed, F., Tyrer, P., Murray, R.M. and Fahy, T. (2003. Prevalence of violent victimisation in severe mental illness. *The British Journal of Psychiatry, 183*(3), 233-238.

Webster, C. D., Martin, M. L., Brink, J., Nicholls, T. L., and Desmarais, S. L. (2009). *Manual for the short-term assessment of risk and treatability (START)(Version 1.1).* Coquitlam, Canada: British Columbia Mental Health and Addiction Services.

Wheeler, J. R., and Berliner, L. (1988). *Treating the effects of sexual abuse on children*. In G. E. Wyatt and G. J. Powell (Eds.), *Sage focus editions, Vol. 100. Lasting effects of child sexual abuse* (p. 227–247). Sage Publications, Inc

Widom, C. S. (1999). Posttraumatic stress disorder in abused and neglected children grown up. *American Journal of Psychiatry, 156*(8), 1223-1229.

Widom, C. S., Czaja, S. J., and Dutton, M. A. (2008). Childhood victimization and lifetime revictimization. *Child abuse and neglect, 32*(8), 785-796.

Wilson, C., Seaman, L., and Nettelbeck, T. (1996). Vulnerability to criminal exploitation: Influence of interpersonal competence differences among people with mental retardation. *Journal of Intellectual Disability Research, 40(*1), 8-16.

Winstanley, S., and Whittington, R. (2004). Aggression towards health care staff in a UK general hospital: variation among professions and departments. *Journal of clinical nursing, 13*(1), 3-10.

Wohlfarth, T., Winkel, F. W., Ybema, J. F., and van den Brink, W. (2001). The relationship between socio-economic inequality and criminal victimisation: a prospective study. *Social psychiatry and psychiatric epidemiology, 36*(7), 361-370.

World Health Organization (2016). Child Maltreatment Fact Sheet. *Retrieved 07/10/2020, from https://www.who.int/news-room/fact-sheets/detail/child-maltreatment.*

Appendix A. Instructions for Authors from the Journal of Interpersonal Violence.

Manuscript Preparation

Manuscripts should be prepared using the APA Style Guide, and should be no longer than 30 double-spaced pages, including references, tables, and figures. (Brief Notes should be no longer than 12 double-spaced pages, inclusive.) Text must be in 12-point Times New Roman font. Block quotes may be single-spaced. Manuscripts must include margins of 1 inch on all sides and pages must be numbered sequentially. All files should be in Word (.docx or .doc).

The manuscript should include five major sections (in this order): Title Page, Abstract, Main Body (blinded, with all author names and identifying information removed for peer review), References, and Author Biographies.

Sections in a manuscript may include the following (in this order): (1) Title page, (2) Abstract, (3) Keywords, (4) Text, (5) Notes, (6) References, (7) Tables, (8) Figures, (9) Appendices, and (10) Author Biographies.

1. Title page must be uploaded as a separate file. Please include the following:

Full article title

Acknowledgments and credits

Each author’s complete name and institutional affiliation(s)

Grant numbers and/or funding information

Conflict of interests, if any

Corresponding author (name, address, phone/fax, e-mail)

2. Abstract. Copy and paste the abstract (250 to 300 words) into the space provided, headed by the full article title. Omit author names. Abstract must clearly and concisely summarize the study questions, subjects, methods, findings, and major implications.

3. Keywords. 5-7 keywords must be included in the manuscript.

4. Text. Begin text headed by the full article title. Text must be blinded, with all author names and other identifying information removed, for peer review.

a. Headings and subheadings. Subheadings should indicate the organization of the content of the manuscript. Generally, three heading levels are sufficient to organize text.

Level 1: centered, boldface, upper and lowercase

Level 2: flush left, boldface, upper and lowercase

Level 3: indented, boldface, lowercase paragraph heading ending with a period

Level 4: indented, boldface, italicized, lowercase paragraph heading ending with a period

Level 5: indented, italicized, lowercase paragraph heading ending with a period

b. Citations. For each text citation there must be a corresponding citation in the reference list and for each reference list citation there must be a corresponding text citation. Each corresponding citation must have identical spelling and year. Each text citation must include at least two pieces of information: author(s) and year of publication. Following are some examples of text citations:

(i) Unknown Author: To cite works that do not have an author, cite the source by its title in the signal phrase or use the first word or two in the parentheses. For example, “The findings are based on the study of students learning to format research papers” ("Using XXX," 2001)

(ii) Authors with the Same Last Name: Use first initials with the last names to prevent confusion. For example, “L. Hughes, 2001; P. Hughes, 1998.”

(iii) Two or More Works by the Same Author in the Same Year: For two sources by the same author in the same year, use lowercase letters (a, b, c) with the year to order the entries in the reference list. The lower-case letters should follow the year in the in-text citation. For example, “Research by Freud (1981a) illustrated that…”

(iv) Personal Communication: For letters, e-mails, interviews, and other person-to-person communication, citation should include the communicator's name, the fact that it was

personal communication, and the date of the communication. For example, E. Clark, personal communication, January 4, 2009. Do not include personal communication in the reference list.

(v) Unknown Author and Unknown Date: For citations with no author or date, use the title in the signal phrase or the first word or two of the title in the parentheses and use the abbreviation "n.d." (for "no date"). For example, “The study conducted by the students and research division discovered that students succeeded with tutoring” (Tutoring and APA, n.d.).

5. Notes. If explanatory notes are required for your manuscript, insert a number formatted in superscript following almost any punctuation mark. Footnote numbers should not follow dashes (—), and if they appear in a sentence in parentheses, the footnote number should be inserted within the parentheses. The footnotes should be added at the bottom of the page after the references. The word “Footnotes” should be centered at the top of the page.

6. References. Basic rules for the reference list:

The reference list should be arranged in alphabetical order according to the authors’ last names.

If there is more than one work by the same author, order them according to their publication date – oldest to newest (therefore a 2008 publication would appear before a 2009 publication).

When listing multiple authors of a source use “and” instead of “and.”

Capitalize only the first word of the title and of the subtitle, if there is one, and any proper names – i.e., only those words that are normally capitalized.

Italicize the title of the book, the title of the journal/serial and the title of the web document.

Manuscripts submitted to JIV should strictly follow the current APA style guide.

Every citation in text must have the detailed reference in the Reference section.

Every reference listed in the Reference section must be cited in text.

Do not use “et al.” in the Reference list at the end; names of all authors of a publication should be listed there.

7. Tables. They should be structured properly. Each table must have a clear and concise title. When appropriate, use the title to explain an abbreviation parenthetically, for example, Comparison of Median Income of Adopted Children (AC) v. Foster Children (FC).

8. Figures. They should be numbered consecutively in the order in which they appear in the text and must include figure captions. Figures will appear in the published article in the order in which they are numbered initially. The figure resolution should be at least 300dpi at the time of submission.

IMPORTANT: PERMISSION - The author(s) are responsible for securing permission to reproduce all copyrighted figures or materials before they are published in JIV. A copy of the written permission must be included with the manuscript submission.

9. Appendices. They should be lettered to distinguish from numbered tables and figures. Include a descriptive title for each appendix (e.g., “Appendix A. Variable Names and Definitions”). Cross-check text for accuracy against appendices.

Appendix B. Ethical Approval Letters

Alice Fawdrey

Trainee Clinical Psychologist

Child and Adolescent Mental Health Service

NHS Tayside

Tuesday the 30th July 2019

Dear Alice,

Re: Patient-directed aggression or violence in a forensic mental health setting: The nature of patient-directed incidents, and variables associated with being subjected to aggression or violence.

Many thanks for your revised research proposal addressing the requirements of the TSH Research Committee. I am now able to provide Research Committee approval for your study. This letter will be copied to the Associate Medical Director along with evidence of your NHS ethical approval once recieved, who will subsequently provide final management approval for the study to take place within TSH.

The conditions of the research committees' approval include the provision of regular 6-monthly progress reports, an important mechanism by which the committee track progress, and also a key component of our research governance processes; and a study final report addressing the key findings and implications for practice within the hospital.

If you require any further assistance, or have any feedback on the Research approval process then please do not hesitate to contact me.

Yours sincerely

JAMIE PITCAIRN

Research and Development Manager

The State Hospital

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

Gwasanaeth Moeseg Ymchwil
Research Ethics Service

Ariennir gan Lywodraeth Cymru
Funded by Welsh Government

Wales REC 6
c/o Public Health Wales
Building 1
Jobswell Road
St David's Park
SA31 3HB

Telephone : 01267 61 1164
E-mail : sue.byng@wales.nhs.uk
Website : www.hra.nhs.uk

Ms Alice Fawdrey

23 September 2019

Dear Ms Fawdrey

Study title:	**Patients directed aggression or violence in a forensic mental health setting: Variables associated with being subjected to aggression or violence, and the nature of patient to patient incidents.**
REC reference:	**19/WA/0270**
IRAS project ID:	**251519**

The Research Ethics Committee reviewed the above application at the meeting held on 18 September 2019. Thank you for participating by telephone to discuss the application.

The members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation, subject to the conditions specified below.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Number	Condition
1	The Committee noted the protocol page 17, first paragraph stated "the Investigators will inform participants of the premature study closure and ensure that the appropriate follow up is arranged for all participants involved." This should be removed as there will be no consent process.

You should notify the REC once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. Revised documents should be submitted to the REC electronically from IRAS. The REC will acknowledge receipt and provide a final list of the approved documentation for the study, which you can make available to host organisations to facilitate their permission for the study. Failure to provide the final versions to the REC may cause delay in obtaining permissions.

Confirmation of Capacity and Capability (in England, Northern Ireland and Wales) or NHS management permission (in Scotland) should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for HRA and HCRW Approval (England and Wales)/ NHS permission for research is available in the Integrated Research Application System.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations.

Registration of Clinical Trials

It is a condition of the REC favourable opinion that all clinical trials are registered on a publicly accessible database. For this purpose, clinical trials are defined as the first four project categories in IRAS project filter question 2. For clinical trials of investigational medicinal products (CTIMPs), other than adult phase I trials, registration is a legal requirement.

Registration should take place as early as possible and within six weeks of recruiting the first research participant at the latest. Failure to register is a breach of these approval conditions, unless a deferral has been agreed by or on behalf of the Research Ethics Committee (see here for more information on requesting a deferral: https://www.hra.nhs.uk/planning-and-improving-research/research-planning/research-registration-research-project-identifiers/

As set out in the UK Policy Framework, research sponsors are responsible for making information about research publicly available before it starts e.g. by registering the research project on a publicly accessible register. Further guidance on registration is available at: https://www.hra.nhs.uk/planning-and-improving-research/research-planning/transparency-responsibilities/

You should notify the REC of the registration details. We routinely audit applications for compliance with these conditions.

Publication of Your Research Summary

We will publish your research summary for the above study on the research summaries section of our website, together with your contact details, no earlier than three months from the date of this favourable opinion letter. Should you wish to provide a substitute contact point, make a request to defer, or require further information, please visit: https://www.hra.nhs.uk/planning-and-improving-research/application-summaries/research-summaries/

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

After ethical review: Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study, including early termination of the study
- Final report

The latest guidance on these topics can be found at https://www.hra.nhs.uk/approvals-amendments/managing-your-approval/.

Ethical review of research sites

NHS/HSC Sites

The favourable opinion applies to all NHS/HSC sites taking part in the study taking part in the study, subject to confirmation of Capacity and Capability (in England, Northern Ireland and Wales) or NHS management permission (in Scotland)being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS/HSC sites

I am pleased to confirm that the favourable opinion applies to any non NHS/HSC sites listed in the application, subject to site management permission being obtained prior to the start of the study at the site.

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
IRAS Application Form [IRAS_Form_27082019]		27 August 2019
IRAS Checklist XML [Checklist_27082019]		27 August 2019
Research protocol or project proposal	1	12 August 2019
Summary CV for Chief Investigator (CI) [Alice Fawdrey]		07 August 2019
Summary CV for student [CV for Alice Fawdrey - student]		07 August 2019
Summary CV for supervisor (student research) [CV for Suzanne O'Rourke]		14 January 2019

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

HRA Learning

We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities– see details at: https://www.hra.nhs.uk/planning-and-improving-research/learning/

19/WA/0270	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project.

Yours sincerely

pp.Dr Matthew Lawrence
Chair

E-mail: Wales.REC6@wales.nhs.uk

Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments

"After ethical review – guidance for researchers"

Copy to: *Mr Jaime Pitcairn, The State Hospital*
Lead Nation
Scotland: nhsg.NRSPCC@nhs.net

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

Gwasanaeth Moeseg Ymchwil
Research Ethics Service

Ariennir gan Lywodraeth Cymru
Funded by Welsh Government

Wales REC 6
c/o Public Health Wales
Building 1
Jobswell Road
St David's Park
SA31 3HB

Telephone : 01267 61 1164
E-mail : :
Website : www.hra.nhs.uk

Ms Alice Fawdrey

1 October 2019

Dear Ms Fawdrey

Study title: **Patients directed aggression or violence in a forensic mental health setting: Variables associated with being subjected to aggression or violence, and the nature of patient to patient incidents.**
REC reference: **19/WA/0270**
IRAS project ID: **251519**

Thank you for your letter of 30 September 2019. I can confirm the REC has received the documents listed below and that these comply with the approval conditions detailed in our letter dated 23 September 2019

Documents received

The documents received were as follows:

Document	*Version*	*Date*
IRAS Checklist XML [Checklist_01102019]		01 October 2019
Other [Ethical Review Further Information Letter]		30 September 2019
Research protocol or project proposal (tracked and clean versions)	2	30 September 2019

Approved documents

The final list of approved documentation for the study is therefore as follows:

Document	*Version*	*Date*
IRAS Checklist XML [Checklist_01102019]		01 October 2019
Other [Ethical Review Further Information Letter]		30 September 2019
Research protocol or project proposal	2	30 September 2019
Summary CV for Chief Investigator (CI) [Alice Fawdrey]		07 August 2019
Summary CV for student [Alice Fawdrey]		07 August 2019
Summary CV for supervisor (student research) [Suzanne O'Rourke]		14 January 2019

You should ensure that the sponsor has a copy of the final documentation for the study. It is the sponsor's responsibility to ensure that the documentation is made available to R&D offices at all participating sites.

19/WA/0270	Please quote this number on all correspondence

Yours sincerely

Sue Byng
REC Manager

E-mail: Wales.REC6@wales.nhs.uk

Copy to: *Mr Jaime Pitcairn, The State Hospital*

Lead Nation Scotland: nhsg.NRSPCC@nhs.net

Appendix C. Full List of Diagnoses Found, and Their Grouping.

Category	Included Diagnoses
Psychotic Disorders	• Schizophrenia • Paranoid Schizophrenia • Treatment Resistant Paranoid Schizophrenia • Obsessional thoughts and acts, believed to be secondary to schizophrenia • Schizophrenia, schizotypal, and delusional disorders or unspecific nonorganic psychosis • Treatment Resistant Paranoid Schizophrenia • Schizophrenia with affective component • Hebephrenic schizophrenia • Drug Induced Psychosis • Acute Psychotic Episode, Delusional Disorder, Organic Psychotic Disorder • Persistent Delusional Disorder (Persecutory subtype) • Chronic Hallucinatory Psychosis NOS • Delusional Disorder; Persecutory • Delusional disorder • Previous acute psychotic disorder with acute stress, may have been drug induced • Other acute transient psychotic disorder • Alcohol induced residual and late onset psychotic disorder • Psychotic illness • Organic delusional (schizophrenia like) illness disorder due to HIV • Psychotic episode not otherwise specified • Transient psychotic episode • Other nonorganic psychotic disorder • Acute and transient psychotic disorder • Psychotic episode with elevated mood • Psychotic disorder due to psychoactive substance use
Schizoaffective Disorder	• Schizoaffective Disorder
Bipolar Affective Disorder	• Bipolar affective disorder with psychotic features • Bipolar disorder • Cyclothimia • Manic depression
Personality Disorders	• Organic Personality Disorder secondary to anoxic brain injury • Head injury and personality disorder • Organic personality disorder attributed to perinatal brain damage • Borderline Personality Disorder • Emotionally Unstable Personality Disorder

	• Dissocial Personality Disorder • Anti-social personality disorder • Antisocial personality disorder • Schizoptypal personality disorder • Complex personality disorder with borderline and antisocial traits • Mixed Personality Disorder (antisocial, narcissistic, and paranoid type F67) • Personality disorder - mixed dissocial and borderline • Obsessional personality disorder with avoidant traits • Anakastic personality disorder • Psychopathy
Autism Spectrum Disorder	• Asperger's Syndrome • Autism Spectrum Disorder • Autism • ASD
Attention Deficit Hyperactivity Disorder	• ADHD • ADD
Intellectual Impairment	• Mild cognitive disorder • Mild Learning Disability • Borderline IQ • Mild intellectual disabilities • Borderline intellectual disability • Learning disability • Learning Disability (Mild) • Moderate Learning Disability
Depression	• Severe Depressive Episode • Depressive Disorder with psychotic symptoms • Depressive Disorder • Recurrent depressive disorder, moderate with somatic symptoms • Moderate depressive episode • Recurrent depressive disorder
Anxiety Disorder	• Social Phobia • Generalised anxiety disorder • Acute stress disorder • GAD
Post-Traumatic Stress Disorder	• PTSD
Obsessive Compulsive Disorder	• OCD
Brain Injury	• Cortical atrophy • Frontal corpus collosum brain tumour • Traumatic brain injury • Perinatal brain damage

	• Acquired head injury aged XX • Foetal alcohol syndrome
Developmental Disorder	• Other genetic developmental disorder
Substance Misuse	• Alcohol Misuse (abstinent) • Drug and Alcohol abuse, currently abstinent • Polysubstance misuse • Nondependent polysubstance misuse currently in remission • Illicit substance misuse • Alcohol misuse • Cannabis misuse • Multiple substance use • Harmful use of amphetamines • Mental disorder due to the use of drugs • Opiate dependence and polysubstance abuse • Polysubstance dependence • Mental and behavioural disorder due to multiple drug use • Alcohol dependence syndrome
Adjustment Disorder	• Adjustment reaction • Adjustment disorder
Disorders of sexual preference or behaviour	• Disorders of sexual preference • Disorder of sexual preference (paraphilia), sexual dysfunction not caused by other organic disorder or disease • Paedophilia
Sleep Disorders	• Paradoxical sleep disorder
Dementia	• Dementia

Appendix D. Non-Bootstrapped Hierarchical Multiple Regression Analysis Summary; Predicting Number of Victimization Experiences, with Childhood Abuse History and Mental Health Diagnoses

Step	Predictor Variables	*B*	*SE B*	Beta	t	*p*	*sr*	R^2	Change in R^2	F change	Sig. *F* change	Cohen's f^2
Step 1	Constant	.809	1.330		.608	.544		.061	.061	6.409	.013	.0649
	Days in the study	.003	.001	.247	2.532	.013	.247					
Step 2	Constant	-.085	1.418		-.060	.953		.132	.071	2.625	.055	.152
	Days in the study	.003	.001	.239	2.509	.014	.239					
	CSA only	6.300	2.304	.267	2.734	.007	.260					
	CPA only	1.783	1.703	.104	1.047	.298	.100					
	CSA and CPA	.535	1.776	.030	.301	.764	.029					
Step 3	Constant	2.539	2.140		1.187	.238		.364	.232	8.394	.000	.572
	Days in the study	.003	.001	.262	3.041	.003	.253					
	CSA only	4.013	2.075	.170	1.934	.056	.161					
	CPA only	.833	1.558	.049	.535	.594	.044					
	CSA and CPA	.129	1.606	.007	.081	.936	.007					
	Psychotic Disorder	-4.127	1.565	-.295	-2.637	.010	-.219					
	Schizoaffective	-3.377	2.172	-.163	-1.555	.123	-.129					
	Personality Disorder	-.982	1.246	-.073	-.788	.432	-.066					
	Intellectual Impairment	5.517	1.676	.321	3.293	.001	.274					

Note. Sr = semipartial correlation coefficient. N=101, after pairwise exclusion of 3 cases with missing data regarding history of childhood abuse.

Appendix E. Study Protocol

Non-CTIMP Study Protocol

Patient-directed aggression or violence in a forensic mental health setting: The nature of patient-directed incidents, and variables associated with being subjected to aggression or violence.

	The University of Edinburgh College of Arts, Humanities and Social Sciences, University of Edinburgh, George Square, EH8 9JU
Protocol authors	**Alice Fawdrey**
Chief Investigator	**Alice Fawdrey**
Sponsor number	
REC Number	**19/WA/0270**
Version Number and Date	**Version 2 30/09/2019**

CONTENTS

LIST OF ABBREVIATIONS

ACCORD	Academic and Clinical Central Office for Research and Development - Joint office for The University of Edinburgh and Lothian Health Board
AoV	Aggression or Violence
CI	Chief Investigator
GCP	Good Clinical Practice
TSH	The State Hospital
MDT	Multi-Disciplinary Team
PI	Principal Investigator
QA	Quality Assurance
REC	Research Ethics Committee

1 TITLE AND SUMMARY

1.1 Title

Patient-directed aggression or violence in a forensic mental health setting: The nature of patient-directed incidents, and variables associated with being subjected to aggression or violence.

1.2 Summary

Incidents in which patients are subject to verbal, physical, or sexual assault within secure hospital settings in Scotland are recorded using incident reporting systems. By examining the incident reports and the involved patients' care records, we will seek to describe the subgroup of patients who are subject to aggression or violence, identify whether history of childhood abuse is associated with membership of this subgroup, whether current mental health diagnosis mediates this association, and explore the methods by which patients are targeted for aggression or violence to deepen our understanding of patient-directed violence within forensic mental health settings.

INTRODUCTION

2.1 Predicting aggression and victimisation within inpatient environments

There is much research attempting to describe, predict, or explain aggression within inpatient environments, both forensic and acute (for reviews and meta-analyses see Cornaggia, Beghi, Pavone, and Barale, 2011; Flannery et al., 2014; Iozzino et al., 2015). This research is characterised by a focus on three main questions; which staff are at greater risk of victimisation, which patients are more likely to display aggression, and which environmental and ward level characteristics seem to predict aggression. The rationale for investigating these areas is clear, as key factors which may allow the prediction and prevention of incidents of aggression.

Conspicuously neglected by the research on aggression within inpatient environments, however, is similar research into patient-directed aggression. Many studies report that half or more of incidents of aggressive behaviour in inpatient environments are directed at fellow patients (Nicholls et al., 2009; Bader, Evans, and Welsh, 2014; Broderick, Azizian, Kornbluh and Warbuton, 2015), and there is some evidence that aggression directed at fellow patients tends to be more severe than that directed at staff (Nicholls et al., 2009; Dicken, Pucchioni, and Long, 2013). Further, reports and prevalence studies from the general inpatient population indicate that around a third of inpatients feel unsafe whilst in hospital, and 30-50% of inpatients experience violent or threatening behaviour whilst in care (Mind, 2004; Healthcare Commission, 2005; Hodgins et al., 2007).

2.2 Existing literature regarding vulnerability to victimisation

The majority of research related to victimisation has been conducted outwith the inpatient mental health setting, instead being drawn from the general population, college students, those accessing mental health services for trauma reactions, and adolescents with reference to bullying and peer victimisation. In this literature the definition of victimisation is variable, and does not provide a single cohesive definition. The majority of studies use a self-report format, in which participants identify whether or not they have experienced any episode of aggression or violence across a given time period. Discussion of frequency or intensity appears in relation to research of the cumulative effects of poly-victimisation, which forms a separate branch from the general victimisation literature.

Vulnerability factors which have been identified include; lower socioeconomic environments (Sampson and Groves; 1989); minority ethnicity (FitzGerald and Hale; 1996); LGBTQ identity (Equality Network, 2017); having a severe mental illness (Teplin et al., 2005; De Mooij et al., 2015); witnessing violent crime in childhood (Spriggs, Halpern, Martin, 2009) and having a learning disability (Jones et al., 2012).

In addition, repeatedly highlighted is the relationship between experiences of maltreatment as a child and later revictimization, which holds across sexual, psychological, or physical assaults. Adults with a history of childhood physical or sexual abuse have been found to be 2 to 4 times more likely to experience adult physical, sexual or psychological victimization than those with no such history (Cloitre et al., 1996; Coid et al., 2001). This link has been found in relation to a variety of contexts and perpetrators; from peers and siblings in adolescence; within intimate relationships, in the workplace, and as a general risk across the lifetime (Finkelhor, Ormrod, and Turner, 2007; Benedini, Fagan, and Gibson, 2016; Calvete et al., 2018; Crawford and Wright, 2007; Sabri et al., 2015; Hosser, Raddatz and Windzio, 2007; Desai et al., 2002).

Desai et al. (2002) looked at a large representative sample of adults in America (16,000 respondents, 8,000 of each gender), and concluded that adults with a history of any child abuse were at significantly increased risk of both physical and sexual victimization in adulthood by both intimate perpetrators (women only) and non-intimate perpetrators (men and women). The type of abuse experienced as a child appears to influence the risk of revictimization; though all abuse types increased the risk of all adult victimization types, the extent of the increase was reported to vary between categories.

2.3 Mediators

With the link between childhood abuse and later revictimization well established, research has turned to attempting to identify mediating factors which could elucidate the pathways from childhood experiences of abuse to later increased risk of victimisation.

Both separately and together, trauma reactions and depression have been suggested as potential mediators in a number of studies (Trauma symptoms: Fortier et al., 2009; Risser et al., 2006; Depression: Hong et al., 2012; Cuevas et al., 2010; Day et al., 2013; Trauma and Depression: Iverson et al., 2011; Auslander et al., 2018)

2.4 Trauma reactions

Evidence for the mediating role of trauma reactions in revictimization has largely been in relation to sexual revictimization of women after childhood sexual abuse. This has been theorized to be as a result of impaired ability to detect and avoid danger due to attentional interference (Cougle, Resnick and Kilpatrick; 2009), or as a function of affect dysregulation

leading to overwhelming affective states and impaired avoidance of dangerous situations (Tanaka et al., 2011).

Auslander et al. (2018) examined the relationship between trauma reactions and revictimization with a cohort of adolescent girls in the care system, finding all elements to be associated. Further, they ran mediation analyses and found that posttraumatic stress fully mediated the relationship between emotional, sexual, and physical abuse and revictimization. They also examined depression, finding it to also fully mediate the above relationships, with the exception of that between emotional abuse and revictimization.

2.5 Depression

A number of studies have found that depression is a risk factor for re-victimisation in children (Cuevas et al., 2010; Mitchell, Ybarra, and Finkelhor 2007), and further that depression mediated the link between childhood abuse and later victimisation in adolescent (Day et al., 2013) and adult samples (Becker-Lausen, Sander, and Chinsky, 1995; Gigycz et al., 1993).

2.6 Qualitative Exploration of Inpatient Aggression

Qualitative research allows for richer and more meaning-based exploration of a particular area or question. Considering the complex, interpersonal, and highly subjective experience of aggression from either the perspective of the aggressor or the victim, it is fitting that researchers have turned to qualitative methods within this area.

One systematic review, focusing on qualitative research within the field of personal recovery in forensic settings, identified through meta-synthesis a theme of “safety and security as a necessary base for the recovery process” (Shepherd et al., 2015). The included studies reported participants’ experiences of forensic settings as a form of “asylum” from a sometimes life-long sense of threat, and that this safety was prerequisite for any meaningful recovery. It could therefore be hypothesized that a lack of security and safety, through revictimization as an inpatient, could impair this recovery.

Some studies have sought, using qualitative approaches, to better understand the perspectives and attitudes of patients and staff regarding the causes, triggers, and prevention of inpatient aggression (Hallett, Huber, and Dickens, 2014; Lamanna, Ninkovic, and Vijayaratnam et al., 2016). Others have focussed on situational risk factors for inpatient aggression (for a literature review across quantitative and qualitative approaches, see Gadon, Johnston and Cooke, 2006). Numerous and varied situational factors were identified by this review, which suggested that given this variety, there may be utility in examining factors in relation to criteria such as security level of the institution, involved parties, and specific types of aggression. The authors went on to conduct interviews with staff and patients regarding the potential for such interactions, preliminarily highlighting factors in regards to staff-victims.

Despite a wealth and variety of research into both revictimization and inpatient aggression, to the best of the investigators’ knowledge no research has sought to examine risk factors of victimisation for those detained in inpatient settings, and whether the relationship between childhood abuse, mental health, and later revictimization holds in these settings. Qualitative research has sought patient perspectives around inpatient aggression, but with a general focus on the aggressor or ward-level situational factors, rather than specifically exploring the aggressor-victim interaction.

This provides a clear rationale for the proposed research studies, which will seek to identify variables associated with being subject to aggression or violence (AoV), and better understand the methods by which such individuals are selected as targets for AoV, thereby contributing to the understanding of patient-directed aggression and violence within forensic settings.

Research Questions

What methods of victim selection appear within descriptions of patient-directed AoV? Does, for example, the subgroup of patients with a history of childhood abuse appear to be targeted randomly, or as the result of a specific action, characteristic, or previous interpersonal interaction?

Is there a subgroup of patients who, due to a history of childhood abuse (potentially mediated by depression or PTSD), are at an increased likelihood of experiencing inpatient assault?

PLAN OF INVESTIGATION

Setting

The study will examine a 5-year period at the State Hospital, from 01.01.2014 to 31.12.2018, using routinely collected data regarding the patients who were detained at the hospital during this period, and incidents of aggression or violence (AoV) directed at patients during this period.

The study is hereafter separated into its two parallel complementary parts which explore patient-directed AoV in two ways: a qualitative exploration at the incident level, and a quantitative exploration at the individual level. The two parallel studies each introduce their own hypotheses, which speak to the research questions outlined above.

At the incident level (Qualitative Branch)

The first half of the study focusses on exploring incidents in which patients are subjected to AoV. This will involve a focused application of thematic analysis to prose descriptions of the incidents, specifically regarding the reasons and methods of target selection described, and the rating of each incident's severity. Although the focus of this section is on qualitative exploration of incidents, incidents will also be linked to the individuals involved quantitatively, in order to explore any correlations between the individual variables examined in the individual level section of the study, and the incident level variables explored here.

Sampling plan

All Datix incidents identified as patient-to-patient in nature, and dated between the 01.01.2014 and 31.12.2018, will be included. Should the incident reports be lacking any of

the key information listed below, the Security Department at The State Hospital will be consulted; the department keeps an additional record of incidents involving patients in order to provide risk handovers to staff beginning work shifts. These records will be accessed only to extract any missing necessary data, which will be added to the primary dataset.

Additional qualitative data related to these incidents will be extracted from the patient files of the involved individuals.

Sample Size Calculation

Braun and Clarke's (2013) guidelines for determining the required sample size in thematic analysis recommend smaller studies using "participant generated text" to recruit **10-50** participants. In order to offset the likely limited and variable nature of the data planned for use in this study, every incident within the time period will be included; estimates of the number of incidents available sit at between 10 and 30 incidents per year, with an average of 20. This gives us a rough estimate of **100** incidents in our sample.

Hypotheses

1. Distinct reasons for target selection will emerge from thematic analysis of case notes describing incidents in which patients are subjected to AoV.

2. Different types of AoV, and levels of severity of AoV, will be associated with different reasons for targeting.

Data collection

The following information will be extracted from Datix incident reports describing patient-directed AoV;

- The aggressor and victim of the incident
- The type of incident (assault, attempted assault, verbal aggression/abuse, sexual, as defined by the Datix record)
- The severity of the AoV; this will be rated by the researcher using the Overt Aggression Scale (OAS; Yudofsky, et al., 1986). Designed to measure violence in adults and children, the OAS is frequently applied in research to enable standardised categorisation. The OAS categorises violence into; verbal aggression, physical aggression against objects, physical aggression to self and physical aggression against others. The scale further provides descriptions allowing for each type of aggression to be rated on a 1 to 4 scale of severity, which will be used by the researcher to rate each Datix incident's severity. An additional category describing sexual aggression developed by Crocker et al. (2006) designed for use with the OAS-Modified will be used to rate sexual aggression. Where the Datix incident report does not provide adequate detail to rate the incident, the case record of the aggressor will be accessed for additional detail, as described below.
- A measure of the victim's severity of mental illness at the time of the incident will be collected to allow for it's control during the analysis. The Psychosis Evaluation tool for Common use by Caregiver (PECC) score recorded closest to the date of each the incident will be extracted and used to control for the potential impact of positive symptoms of psychosis on interpersonal interactions.

Additional qualitative information will be gathered to support a focussed thematic analysis, by accessing the patient care record of both the aggressor and victim of each incident. Notes will be pulled for screening for 7 days prior to the incident date, and 14 days after. Notes will be selected for inclusion in the thematic analysis if they refer to the incident, or refer to interpersonal interaction with the other party involved in the incident.

Analysis

Firstly, descriptive characteristics of patient-directed incidents of AoV will be generated. After this, various analyses will be conducted to address the hypotheses outlines above.

- ***To address hypothesis 1;*** an inductive thematic analysis of the prose descriptions of incidents of patient-directed aggression will be conducted, to develop categories regarding reasons for or methods of victim selection described in the incident set.

  It is recognized that the collected data will vary in richness of description across incidents, with some incidents likely being sparsely described. This is acceptable, as rich detail about the incident is not key to the study. The purpose of the thematic analysis is only to identify categories of victim selection. Although speculative at this stage, examples of relevant method features include: whether the aggression or violence was pre-planned or spontaneous; targeted specifically at an individual and if so why; for example, an in-moment interpersonal breakdown, related to paranoia; or apparently unrelated to the individual selected.

- ***To address hypothesis 2;*** Each incident will then be categorized regarding its featured victim selection method. Should the information regarding victim selection method be inconsistent between sources (aggressor's file, victim's file, clearly labeled staff opinion), the incident will be identified and sorted as "uncertain". As these categories are yet to be developed, specific hypotheses regarding them have not been produced.

  Once each incident has been categorized and rated by severity, correlation analyses will be conducted. This will seek to identify:

  - whether the presence or absence of childhood abuse correlates with victim selection category/severity of incident

The individual level (Quantitative Branch)

This section of the study seeks to identify variables associated with being subjected to AoV in a forensic inpatient environment, specifically regarding childhood experiences of abuse, and current mental health diagnosis.

Sampling Plan

All patients detained in TSH between 01.01.2014 and 31.12.2018 will be taken as a cohort sample.

The TSH risk department will be asked to extract all incidents of patient-directed aggression or violence recorded between 01.01.2014 and 31.12.2018. Each of these incident entry records should identify the involved parties, the type of assault (verbal, physical, sexual etc), and a prose description of the event. Should an incident record be lacking in any of this information, the Security Department's patient records, or the case file of the aggressor will be accessed in order to collect the information, as described above. For each incident, the victim and aggressor dyad for each will be identified, and their role for that incident entered into a database listing the full cohort.

This database will then be organised to identify the number of incidents of AoV each individual was subject to within the 5-year period; coding each individual as having experienced 0, 1, 2, or 3+ incidents. This data will then be recoded within SPSS to examine these groups individually as numbers allow.

Sample Size Calculation

Estimates from TSH put the frequency of patient-directed AoV at 10-30 incidents per year.

Following the calculations described in Green (1991) for studies using regression analyses, the minimum sample size for this study was set at **110** (104+6 variables). Estimates of the available sample size in the 5-year cohort sit at around **210**, which comfortably exceeds this minimum value.

Hypotheses

1. Patients who are subject to aggression or violence (AoV) whilst inpatients are more likely to have been subjected to childhood abuse (sexual or physical) or more likely to have been subjected to both sexual and physical childhood abuse, than those who were not subject to AoV.

2. A history of both sexual and physical childhood abuse, as opposed to just one of the abuse categories, correlates with a greater number and severity of incidents in which an individual is subject to AoV.

3. The relationship between childhood abuse and later subjection to AoV is mediated by the presence of a mental health diagnosis of Depression or PTSD.

Data collection

Patient characteristics will be extracted from the individual's most recent CPA review document within the 5-year period, stored in the patient file at TSH.

Each patient will be assigned an anonymous identifier, against which the following variable data will be inputted and stored in a Microsoft Excel database. The data will be stored on an NHS encrypted drive, managed within national NHS procedures. Data will be transported on an encrypted NHS USB memory drive, and stored on an NHS Tayside computer or sent using NHS secure email. All data will be pseudo-anonymised at the point of data collection, with the key to this held in a password protected file on TSH server, accessible only to the primary researcher and Dr Suzanne O'Rourke.

Variables to be extracted:

- Demographics (age, nationality, ethnic origin)
- Index offence
- Date of admission
- Route into TSH (where they were admitted from)
- Date of discharge
- Current diagnosis
- Experience of childhood physical abuse (Present/Not Present)
- Experience of childhood sexual abuse (Present/Not Present)
- Current main diagnosis, current other diagnoses.
- Mean severity of incidents in which the patient was subjected to AoV

Depression and PTSD will be operationalised as the presence of a formal diagnosis only, as reported in each individual's CPA document; unlike previous research in this area which has examined sub-clinical depression or trauma symptoms from self-reported questionnaire measures.

Though it is likely that there will be individuals with sub-clinical depression or PTSD symptoms which have not been formally diagnosed, limiting our attention to the diagnosed-only group allows for the current study to be completed at the proposed scale (using pre-existing data regarding individuals' diagnoses, rather than necessitating the delivery and collection of self-report measures). We acknowledge that this approach will provide reduced sensitivity but believe the increased specificity provided by a formal psychiatric diagnosis will be valuable.

Mean severity of incidents in which the patient was subjected to AoV will be calculated by cross-referencing the incident level aspect of the study described above. For each individual, the total number of incidents in which they were subjected to AoV will be divided by each incident's severity score, rated by the researcher in the manner described above. This will produce a score between 1 and 4 which will allow for the relative severity of the AoV an individual has been subjected to over the 5-year period be examined.

Analysis

Firstly, descriptive characteristics of each group will be explored. After this, various analyses will be conducted to address the hypotheses outlined above.

- **To address Hypothesis 1;** regression analysis which aims to predict membership of the 0, 1, 2, and 3+ groups using the following variables*;
    - Presence of only physical abuse as a child
    - Presence of only sexual abuse as a child
    - Presence of both physical and sexual abuse as a child
    - No recorded presence of abuse as a child
- **To address Hypothesis 2;** correlation analysis*
    - aiming to identify whether a history of both physical and sexual abuse in childhood, as opposed to one or the other, correlates with more incidents, or a greater mean severity of incident, in which the individual is subject to AoV as an inpatient
- **To address Hypothesis 3**; mediator/regression analysis*

- Examining the potential influence of Depression or PTSD diagnosis in the relationship between experiences of childhood abuse, and membership of the victim-only or victim and aggressor groups

**controlling for length of stay in the 5-year period*

DATA MANAGEMENT

Personal Data

The following personal data will be collected as part of the research:

Each patient will be assigned an anonymous identifier, against which the following variable data will be inputted and stored in a Microsoft Excel database. The data will be stored on an NHS encrypted drive, managed within national NHS procedures. Data will be transported on an encrypted NHS USB memory drive, and stored on an NHS Tayside computer or sent using NHS secure email. All data will be pseudo-anonymised at the point of data collection, with the key to this held in a password protected file on TSH server, accessible only to the primary researcher, Dr Suzanne O'Rourke and Dr Joseph Judge.

Transfer of Data

Data collected or generated by the study (including personal data) will not be transferred to any external individuals or organisations outside of the Sponsoring organisation(s).

Data Controller

A data controller is an organisation that determines the purposes for which, and the manner in which, any personal data are processed.

The University of Edinburgh and NHS Tayside are joint data controllers along with any other entities involved in delivering the study that may be a data controller in accordance with applicable laws (e.g. the site).

Data Breaches

Any data breaches will be reported to the University of Edinburgh and NHS Tayside Data Protection Officers who will onward report to the relevant authority according to the appropriate timelines if required.

RISKS

As the study uses pre-existing retrospective data, collected from electronic records within secure administration areas of the research site, direct risk to participant and researcher safety and wellbeing is limited.

If any urgent maters surface related to manageable risk or service provision, the project will be reviewed at the earliest opportunity, and any emerging immediate relevance to patient management/safety will be shared immediately with sponsor so action can be taken.

OVERSIGHT ARRANGEMENTS

Inspection of Records

Investigators and institutions involved in the study will permit trial related monitoring and audits on behalf of the sponsor, REC review, and regulatory inspection(s). In the event of audit or monitoring, the Investigator agrees to allow the representatives of the sponsor direct access to all study records and source documentation. In the event of regulatory inspection, the Investigator agrees to allow inspectors direct access to all study records and source documentation.

Study Monitoring and Audit

The ACCORD Sponsor Representative will assess the study to determine if an independent risk assessment is required. If required, the independent risk assessment will be carried out by the ACCORD Quality Assurance Group to determine if an audit should be performed before/during/after the study and, if so, at what frequency.

Risk assessment, if required, will determine if audit by the ACCORD QA group is required. Should audit be required, details will be captured in an audit plan. Audit of Investigator sites, study management activities and study collaborative units, facilities and 3rd parties may be performed.

GOOD CLINICAL PRACTICE

Ethical Conduct

The study will be conducted in accordance with the principles of the International Conference on Harmonisation Tripartite Guideline for Good Clinical Practice (ICH GCP).

Before the study can commence, all required approvals will be obtained and any conditions of approvals will be met.

Investigator Responsibilities

The Investigator is responsible for the overall conduct of the study at the site and compliance with the protocol and any protocol amendments. In accordance with the principles of ICH GCP, the following areas listed in this section are also the responsibility of the Investigator. Responsibilities may be delegated to an appropriate member of study site staff.

Study Site Staff

The Investigator must be familiar with the protocol and the study requirements. It is the Investigator's responsibility to ensure that all staff assisting with the study are adequately informed about the protocol and their trial related duties.

Data Recording

The Principal Investigator is responsible for the quality of the data recorded at the Site.

Investigator Documentation

The Principal Investigator will ensure that the required documentation is available in local Investigator Site file ISFs.

GCP Training

For non-CTIMP (i.e. non-drug) studies all researchers are encouraged to undertake GCP training in order to understand the principles of GCP. However, this is not a mandatory requirement unless deemed so by the sponsor. GCP training status for all investigators should be indicated in their respective CVs.

Confidentiality

All, reports, and other records must be identified in a manner designed to maintain participant confidentiality. All records must be kept in a secure storage area with limited access. Clinical information will not be released without the written permission of the participant. The Investigator and study site staff involved with this study may not disclose or use for any purpose other than performance of the study, any data, record, or other unpublished information, which is confidential or identifiable, and has been disclosed to those individuals for the purpose of the study. Prior written agreement from the sponsor or its designee must be obtained for the disclosure of any said confidential information to other parties.

Data Protection

All Investigators and study site staff involved with this study must comply with the requirements of the appropriate data protection legislation (including the General Data Protection Regulation and Data Protection Act) with regard to the collection, storage, processing and disclosure of personal information.

Computers used to collate the data will have limited access measures via user names and passwords.

Published results will not contain any personal data and be of a form where individuals are not identified, and re-identification is not likely to take place

STUDY CONDUCT RESPONSIBILITIES

2.1 Protocol Amendments

Any changes in research activity, except those necessary to remove an apparent, immediate hazard to the participant in the case of an urgent safety measure, must be reviewed and approved by the Chief Investigator.

Amendments will be submitted to a sponsor representative for review and authorisation before being submitted in writing to the appropriate REC, and local RandD for approval prior to participants being enrolled into an amended protocol.

Management of Protocol Non-Compliance

Prospective protocol deviations, i.e. protocol waivers, will not be approved by the sponsors and therefore will not be implemented, except where necessary to eliminate an immediate hazard to study participants. If this necessitates a subsequent protocol amendment, this should be submitted to the REC, and local RandD for review and approval if appropriate.

Protocol deviations will be recorded in a protocol deviation log and logs will be submitted to the sponsors every 3 months. Each protocol violation will be reported to the sponsor within 3 days of becoming aware of the violation. All protocol deviation logs and violation forms should be emailed to QA@accord.scot

Deviations and violations are non-compliance events discovered after the event has occurred. Deviation logs will be maintained for each site in multi-centre studies. An alternative frequency of deviation log submission to the sponsors may be agreed in writing with the sponsors.

Serious Breach Requirements

A serious breach is a breach which is likely to effect to a significant degree:

(a) the safety or physical or mental integrity of the participants of the trial; or

(b) the scientific value of the trial.

If a potential serious breach is identified by the Chief investigator, Principal Investigator or delegates, the co-sponsors (seriousbreach@accord.scot) must be notified within 24 hours. It is the responsibility of the co-sponsors to assess the impact of the breach on the scientific value of the trial, to determine whether the incident constitutes a serious breach and report to research ethics committees as necessary.

Study Record Retention

All study documentation will be kept for a minimum of 3 years from the protocol defined end of study point. When the minimum retention period has elapsed, study documentation will not be destroyed without permission from the sponsor.

End of Study

The end of study is defined as the last data collection visit to the Site of the research.

The Investigators or the co-sponsor(s) have the right at any time to terminate the study for clinical or administrative reasons.

The end of the study will be reported to the REC, and R+D Office(s) and co-sponsors within 90 days, or 15 days if the study is terminated prematurely. End of study notification will be reported to the co-sponsors via email to resgov@accord.scot

A summary report of the study will be provided to the REC within 1 year of the end of the study.

Insurance and Indemnity

The co-sponsors are responsible for ensuring proper provision has been made for insurance or indemnity to cover their liability and the liability of the Chief Investigator and staff.

The following arrangements are in place to fulfil the co-sponsors' responsibilities:

- The Protocol has been designed by the Chief Investigator and researchers employed by the University and collaborators. The University has insurance in place (which includes no-fault compensation) for negligent harm caused by poor protocol design by the Chief Investigator and researchers employed by the University.

- Sites participating in the study will be liable for clinical negligence and other negligent harm to individuals taking part in the study and covered by the duty of care owed to them by the sites concerned. The co-sponsors require individual sites participating in the study to arrange for their own insurance or indemnity in respect of these liabilities.
- Sites which are part of the United Kingdom's National Health Service will have the benefit of NHS Indemnity.
- Sites out with the United Kingdom will be responsible for arranging their own indemnity or insurance for their participation in the study, as well as for compliance with local law applicable to their participation in the study.

REPORTING, PUBLICATIONS AND NOTIFICATION OF RESULTS

Authorship Policy

Ownership of the data arising from this study resides with the study team.

REFERENCES

Auslander, W., Tlapek, S. M., Threlfall, J., Edmond, T., and Dunn, J. (2018). Mental health pathways linking childhood maltreatment to interpersonal revictimization during adolescence for girls in the child welfare system. Journal *of interpersonal violence*, 33(7), 1169-1191.

Bader, S., Evans, S. E., and Welsh, E. (2014). Aggression among psychiatric inpatients: the relationship between time, place, victims, and severity ratings. Journal *of the American Psychiatric Nurses Association*, 20(3), 179-186.

Becker-Lausen, E., Sander, B., and Chinsky, J. M. (1995). Mediation of abusive childhood experiences: Depression, dissociation, and negative life outcomes. *American Journal of Orthopsychiatry, 65*, 560–573.

Braun, V., and Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. London: Sage.

Benedini, K. M., Fagan, A. A., and Gibson, C. L. (2016). The cycle of victimization: The relationship between childhood maltreatment and adolescent peer victimization. *Child abuse and neglect, 59*, 111-121.

Broderick, C., Azizian, A., Kornbluh, R., and Warburton, K. (2015). Prevalence of physical violence in a forensic psychiatric hospital system during 2011-2013: Patient assaults, *staff* assaults, and repeatedly violent patients. *CNS Spectrums, 20*(3), 319-30.

Bruce, M., and Laporte, D. (2015). Childhood trauma, antisocial personality typologies and recent violent acts among inpatient males with severe mental illness: Exploring an explanatory pathway*. Schizophrenia research, 162*(1), 285-290.

Calvete, E., Fernández-González, L., González-Cabrera, J. M., and Gámez-Guadix, M. (2018). Continued bullying victimization in adolescents: Maladaptive schemas as a mediational mechanism. *Journal of youth and adolescence, 47(*3), 650-660.

Cloitre, M., Tardiff, K., Marzuk, P. M., Leon, A. C., and Portera, L. (1996). Childhood abuse and subsequent sexual assault among female inpatients. *Journal of Traumatic Stress, 9*, 473-482.

Coid, J., Petruckevitch, A., Feder, G., Chung, W., Richardson, J., and Moorey, S. (2001). Relation between childhood sexual and physical abuse and risk of revictimization in women: A crosssectional survey. *The Lancet, 358*, 450-454.

Cornaggia, Beghi, Pavone, and Barale. (2011). Aggression in psychiatry wards: A systematic review. Psychiatry Research, 189(1), 10-20.

Cougle, J. R., Resnick, H., and Kilpatrick, D. G. (2009). A prospective examination of PTSD symptoms as risk factors for subsequent exposure *to potentially traumatic events* among women. Journal of Abnormal Psychology, 118, 405-411

Crawford, E., and Wright, M. O. D. (2007). The impact of childhood psychological maltreatment on interpersonal schemas and subsequent experiences of relationship aggression. Journal of Emotional Abuse, 7(2), 93-116.

Crocker, A. G., Mercier, C., Lachapelle, Y., Brunet, A., Morin, D., and Roy, M. -E. (2006). Prevalence and Types of Aggressive Behaviour among Adults with Intellectual Disabilities. Journal of Intellectual Disability Research, 50(9), 652-661.

Cuevas, C. A., Finkelhor, D., Clifford, C., and Ormrod, R. K. (2010). Psychological distress as a risk factor for re-victimization in children. *Child Abuse and Neglect, 34*, 235–243.

Day, D., Hart, T., Wanklyn, S., McCay, E., Macpherson, A., Burnier, N., . . . Magaletta, Philip R. (2013). Potential Mediators Between Child Abuse and Both Violence and Victimization in Juvenile Offenders. *Psychological Services, 10(*1), 1-11.

de Mooij, L. D., Kikkert, M., Lommerse, N. M., Peen, J., Meijwaard, S. C., Theunissen, J., Duurkoop, P.W., Goudriaan, A.E., Van, H.L., Beekman, A.T. and Dekker, J. J. (2015). Victimisation in adults with severe mental illness: prevalence and risk factors. *The British Journal of Psychiatry, 207*(6), 515-522.

Desai, S., Arias, I., Thompson, M. P., and Basile, K. C. (2002). Childhood victimization and subsequent adult revictimization assessed in a nationally representative sample of women and men*. Violence and victims*, *17*(6), 639.

Dickens, G., Picchioni, M., and Long, C. (2013). Aggression in specialist secure and forensic inpatient mental health care: Incidence across care pathways. *Journal of Forensic Practice, 15*(3), 206-217.

Equality Network (2017) *Scottish LGBTI hate crime report 2017*. Retrieved from: https://www.equality-network.org/wp-content/uploads/2017/10/en_hc17-full_final1alores.pdf

Finkelhor, David, Ormrod, Richard K., and Turner, *Heather A. (2007). Re-Victimization* Patterns in a National Longitudinal Sample of Children and Youth. Child Abuse and Neglect: The International Journal, 31(5), 479-502.

FitzGerald, M., and Hale, C. (1996*). Ethnic minorities, victimisation and racial harassment*. Great Britain, Home Office, Research and Statistics Department.

Flannery, Raymond, Wyshak, Grace, Tecce, Joseph, and Flannery, Georgina. (2014). Characteristics of International Assaultive Psychiatric Patients: Review of Published Findings, 2000–2012. *Psychiatric Quarterly, 85(*3), 303-317.

Fortier, M. A., DiLillo, D., Messman-Moore, T. L., Peugh, J., DeNardi, K. A., and Gaffey, K. J. (2009). Severity of child sexual abuse and revictimization: The mediating role of coping and trauma symptoms. *Psychology of Women Quarterly, 33*, 308-320.

Gadon, Johnstone, and Cooke. (2006). Situational variables and institutional violence: A systematic review of the literature. *Clinical Psychology Review, 26*(5), 515-534.

Gidycz, C. A., Coble, C. N., Latham, L., and Layman, M. J. (1993). A sexual assault experience in adulthood and prior victimization experiences: A prospective analysis. *Psychology of Women Quarterly, 17*, 151–168.

Green, Samuel B. (1991). How Many Subjects Does It Take to Do a Regression Analysis? Multivariate *Behavioral Research, 26*(3), 499-510.

Hallett, Huber, and Dickens. (2014). Violence prevention in inpatient *psychiatric settings:* Systematic review of studies about the perceptions of care staff and patients*. Aggression and Violent Behavior, 19*(5), 502-514.

Healthcare Commission. (2005). *National audit of violence (2003-2005).* London: Healthcare Commission.

Hodgins, S., Alderton, J., Cree, A., Aboud, A., and Mak, T. (2007). Aggressive behaviour, victimisation and crime among severely mentally ill patients requiring hospitalisation. *The British Journal of Psychiatry, 191(4*), 343-350.

Hong, J. S., Espelage, D. L., Grogan-Kaylor, A., and Allen-Meares, P. (2012). Identifying *potential mediators* and moderators of the association between child maltreatment and bullying perpetration and victimization in school. *Educational Psychology Review*, *24*(2), 167-186.

Hosser, D., Raddatz, S., and Windzio, M. (2007). Child maltreatment, revictimization, and violent behavior. *Violence and victims, 22*(3), 318.

Iozzino, L., Ferrari, C., Large, M., Nielssen, O., and De Girolamo, G. (2015). Prevalence and risk factors of violence by psychiatric acute inpatients: a systematic review and meta-analysis. *PloS one, 10*(6), e0128536.

Iverson, K. M., Gradus, J. L., Resick, P. A., Suvak, M. K., Smith, K. F., and Monson, C. M. (2011). Cognitive–behavioral therapy for PTSD and depression symptoms reduces risk for future intimate partner violence among *interpersonal* trauma survivors. Journal of consulting *and clinical psychology*, *79*(2), 193.

Jones, L., Bellis, M. A., Wood, S., Hughes, K., McCoy, E., Eckley, L., Bates, G., Mikton, C., Shakespeare, T. and Officer, A. (2012). Prevalence and risk of violence against children with disabilities: a systematic review and meta-analysis of observational studies. *The Lancet*, *380*(9845), 899-907.

Kay SR, Wolkenfelf F, Murrill LM (1988), Profiles of aggression among psychiatric patients: I. nature and prevalence. Journal of Nervous and Mental Disease 176:539-546

Lamanna, D., Ninkovic, D., Vijayaratnam, V., Balderson, K., Spivak, H., Brook, S., and Robertson, D. (2016). Aggression in psychiatric hospitalizations: A qualitative study of patient and provider perspectives. Journal of Mental Health, 25(6), 536-542.

Mind (2004). Mind in action. Ward watch campaign special. MIND Publications; London

Mitchell, K. J., Ybarra, M., and Finkelhor, D. (2007). The relative importance of online victimization in understanding depression, delinquency, and substance use*. Child Maltreatment, 12, 314*–324.

Nicholls, Brink, Greaves, Lussier, and Verdun-Jones. (2009). Forensic psychiatric inpatients and aggression: An exploration of incidence, prevalence, severity, and interventions by gender. International Journal of Law and Psychiatry, 32(1), 23-30.

Risser, H. J., Hetzel-Riggin, M. D., Thomsen, C. J., and McCanne, T. R. (2006). PTSD as a mediator of sexual revictimization: The role of reexperiencing, avoidance, and arousal symptoms. Journal of Traumatic Stress, 19, 687-698.

Sabri, B., St. Vil, N., Campbell, J., Fitzgerald, S., Kub, J., and Agnew, *J. (2015*). Racial and Ethnic Differences in Factors Related to Workplace Violence Victimization. Western Journal of Nursing Research, 37(2), 180-196.

Sampson, R. J., and Groves, W. B. (1989). Community structure and crime: Testing social-disorganization theory. American journal of sociology, 94(4), 774-802.

Shepherd A., Doyle M., Sanders C., and Shaw J.: Personal recovery within forensic settings – Systematic review and meta-synthesis of qualitative methods studies. Criminal Behaviour and Mental Health 2015;

Spriggs, A., Halpern, C., and Martin, S. (2009). Continuity of adolescent and early adult partner violence victimisation: Association with witnessing violent crime in adolescence. Journal of Epidemiology and Community Health, 63(9), *741.*

Stinson, J. D., Quinn, M. A., and Levenson, J. S. (2016). The impact of trauma on the onset of mental health symptoms, aggression, and criminal behavior in an inpatient psychiatric sample. Child abuse and neglect, *61*, 13-22.

Tanaka, M., Wekerle, C., Schmuck, M. L., Paglia-Boak, A.,and MAP Research Team. (2011). The linkages among childhood maltreatment, adolescent mental health, and self-compassion in child welfare adolescents. Child Abuse and Neglect, 35, 887-898.

Thesis Master Reference List

Alsawy, S., Wood, L., Taylor, P. J., and Morrison, A. P. (2015). Psychotic experiences and PTSD: exploring associations in a population survey. *Psychological medicine*, *45*(13), 2849-2859.

American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) 4th edition. Washington, DC: APA; 1994.

Anderson, C. (2002). Workplace violence: Are some nurses more vulnerable? *Issues in mental health nursing*, *23*(4), 351-366.

Auslander, W., Tlapek, S. M., Threlfall, J., Edmond, T., and Dunn, J. (2018). Mental health pathways linking childhood maltreatment to interpersonal revictimization during adolescence for girls in the child welfare system. *Journal of interpersonal violence*, *33*(7), 1169-1191.

Battle, C. L., Shea, M. T., Johnson, D. M., Yen, S., Zlotnick, C., Zanarini, M. C., Sanislow, C.A., Skodol, A.E., Gunderson, J.G., Grilo, C.M., and McGlashan, T. H. (2004). Childhood maltreatment associated with adult personality disorders: findings from the Collaborative Longitudinal Personality Disorders Study. Journal of personality Disorders, 18(2), 193-211.

Beck, A. T., Kovacs, M., and Weissman, A. (1979). Assessment of suicidal intention: The scale for suicide ideation. *Journal of Consulting and Clinical Psychology, 47*, 343–352.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., and Erbaugh, J. (1961). An inventory for measuring depression. *Archives of general psychiatry*, *4*(6), 561-571.

Beck, A. T., Weissman, A., Lester, D., and Trexler, L. (1974). The measurement of pessimism: The Hopelessness Scale*. Journal of Consulting and Clinical Psychology, 42*, 861–865.

Beer, M. D., Muthukumaraswamy, A., Khan, A. A., and Musabbir, M. A. (2010). Clinical characteristics of patients with self harming behaviour in a low secure mental health unit*. Journal of Psychiatric Intensive Care, 6(1),* 15-21.

Belsky, J., and De Haan, M. (2011). Annual research review: Parenting and children's brain development: The end of the beginning. *Journal of Child Psychology and Psychiatry*, *52*(4), 409-428.

Bendall, S., Jackson, H. J., Hulbert, C. A., and McGorry, P. D. (2008). Childhood trauma and psychotic disorders: a systematic, critical review of the evidence. *Schizophrenia bulletin*, *34*(3), 568-579.

Bernstein, D.F. and Fink, L. (1998). *Childhood Trauma Questionnaire: A retrospective Self Report*. San Antonio, Texas: The Psychological Corporation.

Bernstein, E. M. and Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous and Mental Disease, 174*, 727-735.

Bierer, L. M., Yehuda, R., Schmeidler, J., Mitropoulou, V., New, A. S., Silverman, J. M., and Siever, L. J. (2003). Abuse and neglect in childhood: relationship to personality disorder diagnoses. *CNS spectrums*, *8*(10), 737-754.

Bochenek, M., and Brown, A. W. (2001). *Hatred in the hallways: Violence and discrimination against lesbian, gay, bisexual, and transgender students in US schools*. Human Rights Watch.

Bohle, A., and De Vogel, V. (2017). Gender Differences in Victimization and the Relation to Personality Disorders in Forensic Psychiatry. *Journal of Aggression, Maltreatment and Trauma, 26*(4), 411-429.

Bottoms, B. L., Rudnicki, A. G., and Epstein, M. A. (2007). A retrospective study of factors affecting the disclosure of childhood sexual and physical abuse. In M. Pipe, M. E. Lamb,Y. Orbach, and A. Cederborg (Eds.), Child sexual abuse: Disclosure, delay and denial (pp. 175-194). Mahwah, NJ: Lawrence Erlbaum.

Bowen, K., Jarrett, M., Stahl, D., Forrester, A., and Valmaggia, L. (2018). The relationship between exposure to adverse life events in childhood and adolescent years and subsequent adult psychopathology in 49,163 adult prisoners: A systematic review. *Personality and Individual Differences*, *131*, 74-92.

Braga, R. J., Reynolds, G. P., and Siris, S. G. (2013). Anxiety comorbidity in schizophrenia. *Psychiatry research*, *210*(1), 1-7.

Briere, J. (1992). Methodological issues in the study of sexual abuse effects. *Journal of consulting and clinical psychology*, *60*(2), 196.

Briere, J., Kaltman, S., and Green, B. L. (2008). Accumulated childhood trauma and symptom complexity. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, *21*(2), 223-226.
Buccheri, R. K., and Sharifi, C. (2017). Critical appraisal tools and reporting guidelines for evidence-based practice. *Worldviews on Evidence-Based Nursing*, *14*(6), 463-472.
Bujang, M. A., Sa'at, N., and Bakar, T. M. I. T. A. (2018). Sample size guidelines for logistic regression from observational studies with large population: emphasis on the accuracy between statistics and parameters based on real life clinical data. *The Malaysian journal of medical sciences: MJMS*, *25*(4), 122.
Calvete, E., Fernández-González, L., González-Cabrera, J. M., and Gámez-Guadix, M. (2018). Continued bullying victimization in adolescents: Maladaptive schemas as a mediational mechanism. *Journal of youth and adolescence*, *47*(3), 650-660.
Carr, C. P., Martins, C. M. S., Stingel, A. M., Lemgruber, V. B., and Juruena, M. F. (2013). The role of early life stress in adult psychiatric disorders: a systematic review according to childhood trauma subtypes. *The Journal of nervous and mental disease*, *201*(12), 1007-1020.
Caslini, M., Bartoli, F., Crocamo, C., Dakanalis, A., Clerici, M., and Carrà, G. (2016). Disentangling the association between child abuse and eating disorders: a systematic review and meta-analysis. *Psychosomatic medicine*, *78*(1), 79-90.
Chaplin R, McGeorge M and Lelliott P (2006) The National Audit of Violence: In-patient care for adults of working age. The Psychiatrist 30(12): 444–446.
Choe, J. Y., Teplin, L. A., and Abram, K. M. (2008). Perpetration of violence, violent victimization, and severe mental illness: balancing public health concerns. *Psychiatric services*, *59*(2), 153-164.
Cicchetti, D. (2002). The impact of social experience on neurobiological systems: Illustration from a constructivist view of child maltreatment. *Cognitive development*, *17*(3-4), 1407-1428.
Cima, M., Merckelbach, H., Klein, B., Shellbach-Matties, R., and Kremer, K. (2001). Frontal lobe dysfunctions, dissociation, and trauma self-reports in forensic psychiatric patients. *The Journal of nervous and mental disease*, *189*(3), 188-190.
Classen, C. C., Palesh, O. G., and Aggarwal, R. (2005). Sexual revictimization: A review of the empirical literature. *Trauma, Violence, and Abuse*, *6*(2), 103-129.
Cloitre, M., Courtois, C. A., Charuvastra, A., Carapezza, R., Stolbach, B. C., and Green, B. L. (2011). Treatment of complex PTSD: Results of the ISTSS expert clinician survey on best practices. *Journal of traumatic stress*, *24*(6), 615-627.
Cloitre, M., Stolbach, B. C., Herman, J. L., Kolk, B. V. D., Pynoos, R., Wang, J., and Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of traumatic stress*, *22*(5), 399-408.
Coid, J., Petruckevitch, A., Feder, G., Chung, W., Richardson, J., and Moorey, S. (2001). Relation between childhood sexual and physical abuse and risk of revictimization in women: A crosssectional survey. *The Lancet, 358*, 450-454.
Cornaggia, C. M., Beghi, M., Pavone, F., and Barale, F. (2011). Aggression in psychiatry wards: a systematic review. *Psychiatry research*, *189*(1), 10-20.
Cougle, J. R., Resnick, H., and Kilpatrick, D. G. (2009). A prospective examination of PTSD symptoms as risk factors for subsequent exposure to potentially traumatic events among women. *Journal of Abnormal Psychology, 118*, 405-411.
Crawford, E., and Wright, M. O. D. (2007). The impact of childhood psychological maltreatment on interpersonal schemas and subsequent experiences of relationship aggression. *Journal of Emotional Abuse*, *7*(2), 93-116.
Cuevas, C. A., Finkelhor, D., Clifford, C., and Ormrod, R. K. (2010). Psychological distress as a risk factor for re-victimization in children. *Child Abuse and Neglect, 34*, 235–243.
Culatta, E., Clay-Warner, J., Boyle, K. M., and Oshri, A. (2020). Sexual revictimization: A routine activity theory explanation. *Journal of interpersonal violence, 35*(15-16), 2800-2824
Dack, C., Ross, J., Papadopoulos, C., Stewart, D., and Bowers, L. (2013). A review and meta-analysis of the patient factors associated with psychiatric in-patient aggression. *Acta Psychiatrica Scandinavica*, *127*(4), 255-268.

Daffern, M., Mayer, M., and Martin, T. (2006). Staff gender ratio and aggression in a forensic psychiatric hospital. *International journal of mental health nursing*, *15*(2), 93-99.
Day, D. M., Hart, T. A., Wanklyn, S. G., McCay, E., Macpherson, A., and Burnier, N. (2013). Potential mediators between child abuse and both violence and victimization in juvenile offenders. *Psychological services*, *10*(1), 1.
de Mooij, L. D., Kikkert, M., Lommerse, N. M., Peen, J., Meijwaard, S. C., Theunissen, J., Duurkoop, P.W., Goudriaan, A.E., Van, H.L., Beekman, A.T. and Dekker, J. J. (2015). Victimisation in adults with severe mental illness: prevalence and risk factors. *The British Journal of Psychiatry*, *207*(6), 515-522.
de Vogel, V., de Vries Robbé, M., van Kalmthout, W., and Place, C. (2012). *Female Additional Manual (FAM). Additional guidelines to the HCR-20 for assessing risk for violence in women.* Utrecht, The Netherlands: Van der Hoeven Stichting.
de Vogel, V., de Vries Robbé, M., van Kalmthout, W., and Place, C. (2014). *Female Additional Manual (FAM). Additional guidelines to the HCR-20V3 for assessing risk for violence in women. English version.* Utrecht, The Netherlands: Van der Hoeven Kliniek.
Dean, K., Moran, P., Fahy, T., Tyrer, P., Leese, M., Creed, F., Burns, T., Murray, R., and Walsh, E. (2007). Predictors of violent victimization amongst those with psychosis. *Acta Psychiatrica Scandinavica*, *116*(5), 345-353.

De Ruiter, C., & Trestman, R. L. (2007). Prevalence and treatment of personality disorders in Dutch forensic mental health services. American Academy of Psychiatry and the Law, 35(1), 92.
Diekstra, R. F. W., Duijsens, I. J., EurelingsBontekoe, E. H. M., and Ouwersloot, G. (1993). *The International Personality Disorder Examination (IPDE) versie 1. 1. Interview boek*. Lisse: Swets en Zeitlinger.
Dill, D. L., Chu, J. A., Grob, M. C., and Eisen, S. V. (1991). The reliability of abuse history reports: A comparison of two inquiry formats. *Comprehensive psychiatry*, *32*(2), 166-169.
Douglas, K. S., Hart, S. D., Webster, C. D., and Belfrage, H. (2013). *HCR-20V3: Assessing risk for violence: User guide*. Mental Health, Law, and Policy Institute, Simon Fraser University.
Dudeck, M., Sosic-Vasic, Z., Otte, S., Rasche, K., Leichauer, K., Tippelt, S., Shenar, R., Klingner, S., Vasic, N. and Streb, J. (2016). The association of adverse childhood experiences and appetitive aggression with suicide attempts and violent crimes in male forensic psychiatry inpatients. Psychiatry research, 240, 352-357.
Duxbury, J., and Whittington, R. (2005). Causes and management of patient aggression and violence: staff and patient perspectives. *Journal of advanced nursing*, *50*(5), 469-478.
Eckert, M., Schel, S. H., Kennedy, H. G., and Bulten, B. H. (2017). Patient characteristics related to length of stay in Dutch forensic psychiatric care. *The Journal of Forensic Psychiatry and Psychology*, *28*(6), 863-880.
El Missiry, A., Abd El Meguid, M., Soltan, M., and El Missiry, M. (2014). Sociodemographic and Clinical Characteristics of Victimized Versus Non-Victimized Patients with Schizophrenia: An Egyptian Study. *Activitas Nervosa Superior*, *56*(4), 121-134.
Ellison, L., and Berzins, K. (2019). Responses to inpatient victimisation in mental health settings in England and Wales. *International Review of Victimology*, *25*(2), 141-156.
Equality Network (2017) Scottish LGBTI hate crime report 2017. Retrieved from: https://www.equality-network.org/wp-content/uploads/2017/10/en_hc17-full_final1alores.pdf
Evans, C., Connell, J., Barkham, M., Margison, F., McGrath, G., Mellor-Clark, J., Audin, K. (2002). Towards a standardized brief outcome measure: psychometric properties and utility of the CORE-OM. *British Journal of Psychiatry 180*, 51-60.
Everson, M. D., Smith, J. B., Hussey, J. M., English, D., Litrownik, A. J., Dubowitz, H., Thompson, R., Dawes Knight, E. and Runyan, D. K. (2008). Concordance between adolescent reports of childhood abuse and child protective service determinations in an at-risk sample of young adolescents. *Child maltreatment, 13*(1), 14-26.
Eysenck, H. J., and Eysenck, S. B. G. (1991). *Manual of the Eysenck Personality Scales (EPS Adult).* London, Sydney, Auckland: Hodder and Stoughton.

Faul, F., Erdfelder, E., Lang, A. G., and Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, *39*(2), 175-191.
Filipas, H. H., and Ullman, S. E. (2006). Child sexual abuse, coping responses, self-blame, posttraumatic stress disorder, and adult sexual revictimization. *Journal of Interpersonal Violence*, *21*(5), 652-672.
Finkelhor, D. (2007). Developmental victimology. *Victims of crime*, *3*, 9-34.
Finkelhor, David, Ormrod, Richard K., and Turner, Heather A. (2007). Re-Victimization Patterns in a National Longitudinal Sample of Children and Youth. *Child Abuse and Neglect: The International Journal*, 31(5), 479-502.
Fisher, H. L., Craig, T. K., Fearon, P., Morgan, K., Dazzan, P., Lappin, J., Hutchinson, G., Doody, G.A., Jones, P.B., McGuffin, P. and Murray, R. M. (2011). Reliability and comparability of psychosis patients' retrospective reports of childhood abuse. *Schizophrenia Bulletin*, *37*(3), 546-553.
Fisher, M. H., Baird, J. V., Currey, A. D., and Hodapp, R. M. (2016). Victimisation and Social Vulnerability of Adults with Intellectual Disability: A Review of Research Extending beyond W ilson and B rewer. *Australian Psychologist*, *51*(2), 114-127.
Fisher, M. H., Moskowitz, A. L., and Hodapp, R. M. (2012). Vulnerability and experiences related to social victimization among individuals with intellectual and developmental disabilities. *Journal of Mental Health Research in Intellectual Disabilities*, *5*(1), 32-48.
Fisher, M. H., Moskowitz, A. L., and Hodapp, R. M. (2013).Differences in social vulnerability among individuals with autismspectrum disorder, Williams syndrome, and Down syndrome. *Research in Autism Spectrum Disorders,7,* 931–937.
Flannery, R. B., Wyshak, G., Tecce, J. J., and Flannery, G. J. (2014). Characteristics of American assaultive psychiatric patients: Review of published findings, 2000–2012. *Psychiatric quarterly*, *85*(3), 319-328.
Fortier, M. A., DiLillo, D., Messman-Moore, T. L., Peugh, J., DeNardi, K. A., and Gaffey, K. J. (2009). Severity of child sexual abuse and revictimization: The mediating role of coping and trauma symptoms. *Psychology of Women Quarterly, 33,* 308-320.
Fortugno, F., Katsakou, C., Bremner, S., Kiejna, A., Kjellin, L., Nawka, P., Raboch, J., Kallert, T. and Priebe, S. (2013). Symptoms associated with victimization in patients with schizophrenia and related disorders. *PLoS One*, *8*(3), e58142.
Garieballa, S. S., Schauer, M., Neuner, F., Saleptsi, E., Kluttig, T., Elbert, T., Hoffmann, K. and Rockstroh, B. S. (2006). Traumatic events, PTSD, and psychiatric comorbidity in forensic patients–assessed by questionnaires and diagnostic interview. *Clinical Practice and Epidemiology in Mental Health*, *2*(1), 1-7.
Gaynes, B. N., Brown, C. L., Lux, L. J., Brownley, K. A., Van Dorn, R. A., Edlund, M. J., Coker-Schwimmer, E., Weber, R.P., Sheitman, B., Zarzar, T. and Viswanathan, M. (2017). Preventing and de-escalating aggressive behavior among adult psychiatric patients: a systematic review of the evidence. *Psychiatric services*, *68*(8), 819-831.
Gerberich, S. G., Church, T. R., McGovern, P. M., Hansen, H., Nachreiner, N. M., Geisser, M. S., Ryan, A.D., Mongin, S.J., Watt, G.D. and Jurek, A. (2005). Risk factors for work-related assaults on nurses. *Epidemiology*, 704-709.
Goodman, L. A., Dutton, M. A., and Harris, M. (1997). The relationship between violence dimensions and symptom severity among homeless, mentally ill women. *Journal of traumatic Stress*, *10*(1), 51-70.
Goodman, L. A., Rosenberg, S. D., Mueser, K. T., and Drake, R. E. (1997). Physical and sexual assault history in women with serious mental illness: prevalence, correlates, treatment, and future research directions. *Schizophrenia bulletin*, *23*(4), 685-696.
Gray, N. S., Benson, R., Craig, R., Davies, H., Fitzgerald, S., Huckle, P., Maggs, R., Taylor, J., Trueman, M., Williams, T. and Snowden, R. J. (2011). The Short-Term Assessment of Risk and Treatability (START): A prospective study of inpatient behavior. *International Journal of Forensic Mental Health, 10(*4), 305-313.
Griswold, H., Green, D., Cruise, K., Belfi, B., Lam, J., Grossi, L., Cucco, E. and Iskander, E. (2018). Assessing Risk for Victimization in a Forensic Psychiatric Setting Using the Short-Term Assessment of Risk and Treatability. *Violence and Victims*, *33*(6), 1012-1035.

Grossi, L. M., Green, D., Griswold, H., Cabeldue, M., and Belfi, B. (2019). Assessing Inpatient Victimization Risk Among Insanity Acquittees Using the HCR-20V3. *The journal of the American Academy of Psychiatry and the Law*, *47*(3), 286-298.
Grubaugh, A. L., Zinzow, H. M., Paul, L., Egede, L. E., and Frueh, B. C. (2011). Trauma exposure and posttraumatic stress disorder in adults with severe mental illness: A critical review. *Clinical psychology review*, *31*(6), 883-899.
Gudde, C. B., Olsø, T. M., Whittington, R., and Vatne, S. (2015). Service users' experiences and views of aggressive situations in mental health care: a systematic review and thematic synthesis of qualitative studies. *Journal of multidisciplinary healthcare*, *8*, 449.
Hahn, J. W., McCormick, M. C., Silverman, J. G., Robinson, E. B., and Koenen, K. C. (2014). Examining the impact of disability status on intimate partner violence victimization in a population sample. *Journal of interpersonal violence*, *29*(17), 3063-3085.
Hare, R. D. (1991). The Hare Psychopathy Checklist—Revised. Toronto, Canada: Multi-Health Systems.

Hartz, S. M., Pato, C. N., Medeiros, H., Cavazos-Rehg, P., Sobell, J. L., Knowles, J. A., Bierut, L.J. and Pato, M. T. (2014). Comorbidity of severe psychotic disorders with measures of substance use. *JAMA psychiatry*, *71*(3), 248-254.
Hawton, K., Bergen, H., Kapur, N., Cooper, J., Steeg, S., Ness, J., and Waters, K. (2012). Repetition of self-harm and suicide following self-harm in children and adolescents: Findings from the Multicentre Study of Self-Harm in England. *Journal of Child Psychology and Psychiatry*, *53*(12), 1212-1219.
Healthcare Commission. (2005). National audit of violence (2003-2005). *London: Healthcare Commission*.
Heerde, J. A., Scholes-Balog, K. E., and Hemphill, S. A. (2015). Associations between youth homelessness, sexual offenses, sexual victimization, and sexual risk behaviors: a systematic literature review. *Archives of sexual behavior*, *44*(1), 181-212.
Hein, T. C., and Monk, C. S. (2017). Research Review: Neural response to threat in children, adolescents, and adults after child maltreatment - a quantitative meta-analysis. *Journal of child psychology and psychiatry, and allied disciplines*, *58*(3), 222–230.
Hepworth, I., and McGowan, L. (2013). Do mental health professionals enquire about childhood sexual abuse during routine mental health assessment in acute mental health settings? A substantive literature review. *Journal of Psychiatric and Mental Health Nursing*, *20*(6), 473-483.
Herman, J. L., and van der Kolk, B. A. (1987). Borderline Personality Disorder, in Psychological Trauma, Edited by Van Der Kolk B. Washington, DC: American Psychiatric Press.

Herman, J.L., Perry, J.C., van der Kolk, B.A. (1989). Childhood trauma in borderline personality disorder*. American Journal of Psychiatry 146*, 490–495.
Hiday, V. A. (1995). The social context of mental illness and violence. *Journal of Health and Social Behavior, 36*(2), 122-137.

Hiday, V. A. (1997). Understanding the connection between mental illness and violence. *International Journal of Law and Psychiatry, 20*(4), 399–417.

Hiday, V. A., Swanson, J. W., Swartz, M. S., Borum, R., and Wagner, H. R. (2001). Victimization: a link between mental illness and violence*? International journal of law and psychiatry. 24*(6), 559–572.
Hiday, V. A., Swartz, M. S., Swanson, J. W., Borum, R., and Wagner, H. R. (2002). Impact of outpatient commitment on victimization of people with severe mental illness. *American journal of Psychiatry*, *159*(8), 1403-1411.
Hillberg, T., Hamilton-Giachritsis, C., and Dixon, L. (2011). Critical review of meta-analyses on the association between child sexual abuse and adult psychopathology: a systematic approach. *Trauma, Violence and Abuse*, *12*(1), 38-49.
Hodgins, S., Alderton, J., Cree, A., Aboud, A., and Mak, T. (2007). Aggressive behaviour, victimisation and crime among severely mentally ill patients requiring hospitalisation. *The British Journal of Psychiatry, 191*(4), 343-350.

Hodgins, S., Lincoln, T., and Mak, T. (2009). Experiences of victimisation and depression are associated with community functioning among men with schizophrenia. *Social psychiatry and psychiatric epidemiology*, *44*(6), 448-457.
Hong, J. S., Espelage, D. L., Grogan-Kaylor, A., and Allen-Meares, P. (2012). Identifying potential mediators and moderators of the association between child maltreatment and bullying perpetration and victimization in school. *Educational Psychology Review*, *24*(2), 167-186.
Hosser, D., Raddatz, S., and Windzio, M. (2007). Child maltreatment, revictimization, and violent behavior. *Violence and victims*, *22*(3), 318.
Jones, L., Bellis, M. A., Wood, S., Hughes, K., McCoy, E., Eckley, L., Bates, G., Mikton, C., Shakespeare, T. and Officer, A. (2012). Prevalence and risk of violence against adults with disabilities: a systematic review and meta-analysis of observational studies. *The Lancet*, *379*(9826), 1621-1629.
Iozzino, L., Ferrari, C., Large, M., Nielssen, O., and De Girolamo, G. (2015). Prevalence and risk factors of violence by psychiatric acute inpatients: a systematic review and meta-analysis. *PloS one*, *10*(6), e0128536.
Isele, D., Teicher, M. H., Ruf-Leuschner, M., Elbert, T., Kolassa, I. T., Schury, K., and Schauer, M. (2014). KERF–ein Instrument zur umfassenden Ermittlung belastender Kindheitserfahrungen. *Zeitschrift für Klinische Psychologie und Psychotherapie*, 43: 121–130.
Iverson, K. M., Gradus, J. L., Resick, P. A., Suvak, M. K., Smith, K. F., and Monson, C. M. (2011). Cognitive–behavioral therapy for PTSD and depression symptoms reduces risk for future intimate partner violence among interpersonal trauma survivors. *Journal of consulting and clinical psychology*, *79*(2), 193.
Juvonen, J., and Graham, S. (2014). Bullying in schools: The power of bullies and the plight of victims. *Annual review of psychology*, *65*, 159-185.
Karsten, J., de Vogel, V., and Lancel, M. (2015). *Characteristics and offences of women with borderline personality disorder in forensic psychiatry: a multicentre study. Psychology, Crime and Law, 22(3), 224–237.*
Kessler, R. C., McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., Aguilar-Gaxiola, S., Alhamzawi, A.O., Alonso, J., Angermeyer, M. and Benjet, C. (2010). Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *The British Journal of Psychiatry*, *197*(5), 378-385.
Kolk, B. A., and Fisler, R. E. (1994). Childhood abuse and neglect and loss of self-regulation. *Bulletin of the Menninger Clinic*, *58*(2), 145.
Kühberger, A., Fritz, A., and Scherndl, T. (2014). Publication bias in psychology: A diagnosis based on the correlation between effect size and sample size. *PloS one*, *9*(9), e105825.
Lam, J. A., and Rosenheck, R. (1998). The effect of victimization on clinical outcomes of homeless persons with serious mental illness. *Psychiatric Services*, *49*(5), 678-683.
Lamanna, D., Ninkovic, D., Vijayaratnam, V., Balderson, K., Spivak, H., Brook, S., and Robertson, D. (2016). Aggression in psychiatric hospitalizations: a qualitative study of patient and provider perspectives. *Journal of mental health*, *25*(6), 536-542.
Larney, S., Conroy, E., Mills, K. L., Burns, L., and Teesson, M. (2009). Factors associated with violent victimisation among homeless adults in Sydney, Australia. *Australian and New Zealand Journal of Public Health*, *33*(4), 347-351.
Latalova, K., Kamaradova, D., and Prasko, J. (2014). Violent victimization of adult patients with severe mental illness: a systematic review. *Neuropsychiatric disease and treatment*, *10*, 1925.
Lewis, K. L., and Grenyer, B. F. (2009). Borderline personality or complex posttraumatic stress disorder? An update on the controversy. *Harvard review of psychiatry*, *17*(5), 322-328.
Lindert, J., von Ehrenstein, O. S., Grashow, R., Gal, G., Braehler, E., and Weisskopf, M. G. (2014). Sexual and physical abuse in childhood is associated with depression and anxiety over the life course: systematic review and meta-analysis. *International journal of public health*, *59*(2), 359-372.
Little, L. (1999). Risk factors for assaults on nursing staff: childhood abuse and education level. *Jona: The Journal of Nursing Administration*, *29*(12), 22-29.
Loubser I, Chaplin R and Quirk A (2009) Violence, alcohol and drugs: The views of nurses and patients on psychiatric intensive care units, acute adult wards and forensic wards. *Journal of Psychiatric Intensive Care 5*(1): 33–39.

Low, G., Jones, D., Macleod, A., Power, M., and Duggan, C. (2000). Childhood trauma, dissociation and self-harming behaviour: A pilot study. *British Journal Of Medical Psychology, 73*, 269-278.
Macinnes, M. (2014) *Examining the Sequelae of Childhood Trauma. A systematic review on the influence of childhood trauma on psychopathology.* University of Edinburgh, Edinburgh.
Macinnes, M., Macpherson, G., Austin, J., and Schwannauer, M. (2016). Examining the effect of childhood trauma on psychological distress, risk of violence and engagement, in forensic mental health. *Psychiatry research*, *246*, 314-320.
Maniglio, R. (2009). Severe mental illness and criminal victimization: a systematic review. *Acta Psychiatrica Scandinavica*, *119*(3), 180-191.
Marley, J. A., and Buila, S. (2001). Crimes against people with mental illness: types, perpetrators, and influencing factors. *Social Work*, *46*(2), 115-124.
Mars, B., Heron, J., Klonsky, E. D., Moran, P., O'Connor, R. C., Tilling, K., Wilkinson, P., and Gunnell, D. (2019). Predictors of future suicide attempt among adolescents with suicidal thoughts or non-suicidal self-harm: a population-based birth cohort study. *The Lancet Psychiatry*, *6*(4), 327-337.
Matheson, S. L., Shepherd, A. M., Pinchbeck, R. M., Laurens, K. R., and Carr, V. J. (2013). Childhood adversity in schizophrenia: a systematic meta-analysis. *Psychological medicine*, *43*(2), 225-238.
McCabe, M. P., Cummins, R. A., and Reid, S. B. (1994). An empirical study ofthe sexual abuse of people with intellectual disability. *Sexuality and Disability, 12,* 297–306.
Merrick, M. T., Ports, K. A., Ford, D. C., Afifi, T. O., Gershoff, E. T., and Grogan-Kaylor, A. (2017). Unpacking the impact of adverse childhood experiences on adult mental health. *Child abuse and neglect*, *69*, 10-19.
Messman-Moore, T. L., and Coates, A. A. (2007). The impact of childhood psychological abuse on adult interpersonal conflict: The role of early maladaptive schemas and patterns of interpersonal behavior. *Journal of Emotional Abuse*, *7*(2), 75-92.
Messman-Moore, T. L., and Long, P. J. (2000). Child sexual abuse and revictimization in the form of adult sexual abuse, adult physical abuse, and adult psychological maltreatment. *Journal of interpersonal violence*, *15*(5), 489-502.
Miethe, T. D., and Meier, R. F. (1994). *Crime and its social context: Toward an integrated theory of offenders, victims, and situations*. Suny Press.
Mina, E. E. S., and Gallop, R. M. (1998). Childhood sexual and physical abuse and adult self-harm and suicidal behaviour: a literature review. *The Canadian Journal of Psychiatry*, *43*(8), 793-800.
Mind (2004*). Mind in action. Ward watch campaign special.* MIND Publications; London.
Mitra, M., Mouradian, V. E., and Diamond, M. (2011). Sexual violence victimization against men with disabilities. *American journal of preventive medicine*, *41*(5), 494-497.
Mollica, R. F., Wyshak, G., de Marneffe, D., Khuon, F., and Lavelle, J. (1987). Indochinese versions of the Hopkins Symptom Checklist-25: a screening instrument for the psychiatric care of refugees. *The American journal of psychiatry*, 144(4), 497–500.
Moola S, Munn Z, Tufanaru C, Aromataris E, Sears K, Sfetcu R, Currie M, Qureshi R, Mattis P, Lisy K, Mu P-F. *Chapter 7: Systematic reviews of etiology and risk* . In: Aromataris E, Munn Z (Editors). Joanna Briggs Institute Reviewer's Manual. The Joanna Briggs Institute, 2017. Available from https://reviewersmanual.joannabriggs.org/
Nanni, V., Uher, R., and Danese, A. (2012). Childhood maltreatment predicts unfavorable course of illness and treatment outcome in depression: a meta-analysis. *American Journal of Psychiatry*, *169*(2), 141-151.

Nicholls, T. L., Brink, J., Greaves, C., Lussier, P., & Verdun-Jones, S. (2009). Forensic psychiatric inpatients and aggression: An exploration of incidence, prevalence, severity, and interventions by gender. International journal of law and psychiatry, 32(1), 23-30.

NHS Education for Scotland (NES). 2017. National Trauma Training Framework. Scotland, Author.
Office for National Statistics; National Records of Scotland; Northern Ireland Statistics and Research Agency (2016): 2011 Census aggregate data. UK Data Service (Edition: June 2016). DOI: http://dx.doi.org/10.5257/census/aggregate-2011-1

O'Shea, L. E., Picchioni, M. M., and Dickens, G. L. (2016). The predictive validity of the Short-Term Assessment of Risk and Treatability (START) for multiple adverse outcomes in a secure psychiatric inpatient setting. *Assessment*, *23*(2), 150-162.
Ogata, S. N., Silk, K. R., Goodrich, S., Lohr, N. E., Westen, D., and Hill, E. M. (1990). Childhood sexual and physical abuse in adult patients with borderline personality disorder. *American Journal of Psychiatry*, *147*(8), 1008-1013.
Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. Routledge.
Panzer, A. (2008). The neuroendocrinological sequelae of stress during brain development: the impact of child abuse and neglect. *African journal of psychiatry*, *11*(1), 29-34.
Papadopoulos, C., Ross, J., Stewart, D., Dack, C., James, K., and Bowers, L. (2012). The antecedents of violence and aggression within psychiatric in-patient settings. *Acta Psychiatrica Scandinavica*, *125*(6), 425-439.
Paquola, C., Bennett, M. R., and Lagopoulos, J. (2016). Understanding heterogeneity in grey matter research of adults with childhood maltreatment—a meta-analysis and review. *Neuroscience and Biobehavioral Reviews*, *69*, 299-312.
Paris, J. (2000). Childhood precursors of borderline personality disorder. *Psychiatric Clinics of North America*, *23*(1), 77-88.
Pelcovitz, D., van der Kolk, B., Roth, S., Mandel, F., Kaplan, S., and Resick, P. (1997). Development of a criteria set and a structured interview for disorders of extreme stress (SIDES). *Journal of Trauma Stress, 10,* 3–16.
Quigley, J. M., Thompson, J. C., Halfpenny, N. J., and Scott, D. A. (2019). Critical appraisal of nonrandomized studies—A review of recommended and commonly used tools. *Journal of evaluation in clinical practice*, *25*(1), 44-52.
Ramesh, T., Igoumenou, A., Montes, M. V., and Fazel, S. (2018). Use of risk assessment instruments to predict violence in forensic psychiatric hospitals: a systematic review and meta-analysis. *European psychiatry*, *52*, 47-53.
Read, J., Fink, P., Rudegeair, T., Felitti, V., and Whitfield, C. (2008). Child maltreatment and psychosis: a return to a genuinely integrated bio-psycho-social model. *Clinical Schizophrenia and Related Psychoses, 2*(3), 235-254.
Read, J., Harper, D., Tucker, I., and Kennedy, A. (2018). Do adult mental health services identify child abuse and neglect? A systematic review. *International journal of mental health nursing*, *27*(1), 7-19.
Read, J., Perry, B. D., Moskowitz, A., and Connolly, J. (2001). The contribution of early traumatic events to schizophrenia in some patients: a traumagenic neurodevelopmental model. *Psychiatry: Interpersonal and Biological Processes*, *64*(4), 319-345.
Risser, H. J., Hetzel-Riggin, M. D., Thomsen, C. J., and McCanne, T. R. (2006). PTSD as a mediator of sexual revictimization: The role of reexperiencing, avoidance, and arousal symptoms. *Journal of Traumatic Stress, 19,* 687-698.
Rodríguez-Acosta, R. L., Myers, D. J., Richardson, D. B., Lipscomb, H. J., Chen, J. C., and Dement, J. M. (2010). Physical assault among nursing staff employed in acute care. *Work*, *35*(2), 191-200.

Rutherford, H., and Taylor, P. J. (2004). The transfer of women offenders with mental disorder from prison to hospital. *Journal of Forensic Psychiatry and Psychology*, *15*(1), 108-123.
Sabri, B., St. Vil, N. M., Campbell, J. C., Fitzgerald, S., Kub, J., and Agnew, J. (2015). Racial and ethnic differences in factors related to workplace violence victimization. *Western journal of nursing research*, *37*(2), 180-196.
Sadeh, N., Binder, R. L., and McNiel, D. E. (2014). Recent victimization increases risk for violence in justice-involved persons with mental illness. *Law and Human Behavior*, *38*(2), 119.
Savla, G. N., Vella, L., Armstrong, C. C., Penn, D. L., and Twamley, E. W. (2013). Deficits in domains of social cognition in schizophrenia: a meta-analysis of the empirical evidence. *Schizophrenia bulletin*, *39*(5), 979-992.
Schilling, E. A., Aseltine, R. H., and Gore, S. (2008). The impact of cumulative childhood adversity on young adult mental health: Measures, models, and interpretations. *Social science and medicine*, *66*(5), 1140-1151.

Scrafford, K. E., Grein, K., and Miller-Graff, L. E. (2018). Legacies of childhood victimization: Indirect effects on adult mental health through re-victimization. *Journal of Child and Adolescent Trauma*, *11*(3), 317-326.
Sells, D. J., Rowe, M., Fisk, D., and Davidson, L. (2003). Violent victimization of persons with co-occurring psychiatric and substance use disorders. *Psychiatric Services*, *54*(9), 1253-1257.
Shonkoff, J. P., Garner, A. S., Siegel, B. S., Dobbins, M. I., Earls, M. F., McGuinn, L., Pascoe, J., and Committee on Early Childhood, Adoption, and Dependent Care. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, *129*(1), e232-e246.
Silver, E., Mulvey, E. P., and Monahan, J. (1999). Assessing violence risk among discharged psychiatric patients: towards an ecological approach. *Law and Human Behavior, 23*, 237–255.
Singh, J. P., Desmarais, S. L., Hurducas, C., Arbach-Lucioni, K., Condemarin, C., Dean, K., Doyle, M., Folino, J.O., Godoy-Cervera, V., Grann, M. and Ho, R. M. Y. (2014). International perspectives on the practical application of violence risk assessment: A global survey of 44 countries. *International Journal of Forensic Mental Health*, *13*(3), 193-206.
Skodol, A. E., and Bender, D. S. (2003). Why are women diagnosed borderline more than men?. *Psychiatric Quarterly*, *74*(4), 349-360.
Snaith, R. P., Constantopoulos, A. A., Jardine, M. Y., and McGuf n, P. (1978). A clinical scale for the self-assessment of irritability. *British Journal of Psychiatry, 132*, 164–171.
Spitzer, C., Chevalier, C., Gillner, M., Freyberger, H. J., and Barnow, S. (2006). Complex posttraumatic stress disorder and child maltreatment in forensic inpatients. *The Journal of Forensic Psychiatry and Psychology*, *17*(2), 204-216.
Spitzer, C., Dudeck, M., Liss, H., Orlob, S., Gillner, M., and Freyberger, H. J. (2001). Post-traumatic stress disorder in forensic inpatients. *Journal of Forensic Psychiatry*, *12*(1), 63-77.
Spratt, E. G., Friedenberg, S. L., Swenson, C. C., LaRosa, A., De Bellis, M. D., Macias, M. M., Summer, A.P., Hulsey, T.C., Runyan, D.K. and Brady, K. T. (2012). The effects of early neglect on cognitive, language, and behavioral functioning in childhood. *Psychology* (Irvine, Calif.), 3(2), 175.
Spriggs, A., Halpern, C., and Martin, S. (2009). Continuity of adolescent and early adult partner violence victimisation: Association with witnessing violent crime in adolescence. *Journal of Epidemiology and Community Health*, 63(9), 741.
Stinson, J., Quinn, M., and Levenson, J. (2016). The impact of trauma on the onset of mental health symptoms, aggression, and criminal behavior in an inpatient psychiatric sample. *Child Abuse and Neglect,* 61, 13-22.
Strout, T. D. (2010). Perspectives on the experience of being physically restrained: An integrative review of the qualitative literature. *International Journal of Mental Health Nursing*, *19*(6), 416-427.

Sweeney, A., Filson, B., Kennedy, A., Collinson, L., and Gillard, S. (2018). A paradigm shift: relationships in trauma-informed mental health services. BJPsych advances, 24(5), 319-333.
Tabachnick, B. G., and Fidell, L. S. (2013). Using multivariate statistics: International edition. *Pearson2012*.
Teicher, M. H., and Parigger, A. (2011). Modified Adverse Childhood Experience Scale, version 0.9; inspired by the ACE Scale. In: Neuner F, Elbert T (eds). A Short-Term Intervention for Traumatic Stress, vol. 2. Huber Publishers and Hogrefe: Cambridge, MA, USA/Göttingen, Germany.
Teicher, M. H., Dumont, N. L., Ito, Y., Vaituzis, C., Giedd, J. N., and Andersen, S. L. (2004). Childhood neglect is associated with reduced corpus callosum area. *Biological psychiatry*, *56*(2), 80-85.
Timmerman, I. G. H., and Emmelkamp, P. M. G. (2001). The Relationship Between Traumatic Experiences, Dissociation, and Borderline Personality Pathology among Male Forensic Patients and Prisoners. *Journal of Personality Disorders, 15(2),* 136–149.
van der Kolk, B. A. (2005). Developmental trauma disorder: Toward a rational diagnosis for children with complex trauma histories*. Psychiatric Annals, 35*, 401–408
Vanderlinden, J., van Dyck, R. Vandereyken, W., Vertommen, H., and Verkes (1993). The Dissociation Questionnaire (DISQ): Development and characteristics of a new self report questionnaire. *Clinical Psychology and Psychotherapy, 1*, 21–28.
Ventimiglia, N. (2011). LGBT selective victimization: Unprotected youth on the streets. *JL Soc'y*, *13*, 439.

Walsh, E., Moran, P., Scott, C., McKenzie, K., Burns, T., Creed, F., Tyrer, P., Murray, R.M. and Fahy, T. (2003). Prevalence of violent victimisation in severe mental illness. *The British Journal of Psychiatry*, *183*(3), 233-238.
Watts, S. J., and McNulty, T. L. (2013). Childhood abuse and criminal behavior: Testing a general strain theory model. *Journal of interpersonal violence*, *28*(15), 3023-3040.
Webster, C. D., Martin, M. L., Brink, J., Nicholls, T. L., and Desmarais, S. L. (2009). Manual for the short-term assessment of risk and treatability (START)(Version 1.1). *Coquitlam, Canada: British Columbia Mental Health and Addiction Services*.
Webster, C.D., Douglas, K.S., Eaves, D., and Hart, S.D. (1997). *HCR-20: assessing the risk of violence, version 2.* Vancouver: Simon Fraser University and Forensic Psychiatric Services Commission of British Columbia.
Wechsler, D., Coalson, D. L., and Raiford, S. E. (2008). WAIS-IV. *Wechsler Adult Intelligence Scale: Fourth Edition. Technical and interpretative manual. San Antonio, TX: NCS Pearson*.
Wheeler, J. R., and Berliner, L. (1988). *Treating the effects of sexual abuse on children.* In G. E. Wyatt and G. J. Powell (Eds.), *Sage focus editions, Vol. 100. Lasting effects of child sexual abuse* (p. 227–247). Sage Publications, Inc
Widom, C. S. (1999). Posttraumatic stress disorder in abused and neglected children grown up. *American Journal of Psychiatry*, *156*(8), 1223-1229.
Widom, C. S., and Massey, C. (2015). A prospective examination of whether childhood sexual abuse predicts subsequent sexual offending. *JAMA pediatrics*, *169*(1), e143357-e143357.
Widom, C. S., and Maxfield, M. G. (2001). An Update on the" Cycle of Violence." *Research in Brief.*
Widom, C. S., Czaja, S. J., and Dutton, M. A. (2008). Childhood victimization and lifetime revictimization. *Child abuse and neglect*, *32*(8), 785-796.
Widom, C. S., Czaja, S. J., and Dutton, M. A. (2008). Childhood victimization and lifetime revictimization. *Child abuse and neglect*, *32*(8), 785-796.
Wilson, C., Seaman, L., and Nettelbeck, T. (1996). Vulnerability to criminal exploitation: Influence of interpersonal competence differences among people with mental retardation. *Journal of Intellectual Disability Research*, *40*(1), 8-16.
Winstanley, S., and Whittington, R. (2004). Aggression towards health care staff in a UK general hospital: variation among professions and departments. *Journal of clinical nursing*, *13*(1), 3-10.
Wohlfarth, T., Winkel, F. W., Ybema, J. F., and van den Brink, W. (2001). The relationship between socio-economic inequality and criminal victimisation: a prospective study. *Social psychiatry and psychiatric epidemiology*, *36*(7), 361-370.
Woodhouse, S., Ayers, S., and Field, A. P. (2015). The relationship between adult attachment style and post-traumatic stress symptoms: A meta-analysis. *Journal of anxiety disorders*, *35*, 103-117.

World Health Organization (2016). Child Maltreatment Fact Sheet. *Retrieved 07/10/2020, from https://www.who.int/news-room/fact-sheets/detail/child-maltreatment*.
Wright, M. O. D., Crawford, E., and Del Castillo, D. (2009). Childhood emotional maltreatment and later psychological distress among college students: The mediating role of maladaptive schemas. *Child abuse and neglect*, *33*(1), 59-68.
Young, J. E., Klosko, J. S., and Weishaar, M. E. (2006). *Schema therapy: A practitioner's guide*. Guilford Press.